pro motion

Animation Software for Windows®

cosmigo

Introduction

Pro Motion is a drawing and animation package for graphics that contain up to 256 colors. You can use it to create comics, logos, still images, presentations, clip-arts or game graphics as well as to spruce up your web-pages.

The wide range of powerful functions and tools will help you to create high quality animations. Even if you are not one of the talented artists this software can help you with rendering various color or graphic effects for you. The built in keyframer allows you to calculate animations in 3d-space without expecting you to draw something on your own. Professional artists will find useful tools like the light table, helping to create smooth animations (also known as onion skinning).

Pro Motion was designed similar to the legendary Deluxe Paint which became very popular on the Amiga computer systems. Thus it is the best solution for all people who have been moving from Amiga to PC.

Although it is a 256 color only software you can import and export true color images and animations too, for example AVI-clips or JPEG files. Numerous supported file types will help you to work hand in hand with other graphics software.

About this Manual

This manual is divided into different sections starting with a little overview of the most important functions and followed by tutorials of increasing difficulty level. Because Pro Motion contains hundreds of different tools and functions it is not possible to describe all of them in full detail.

Depending on your experiences with doing computer graphics it is recommended that you decide yourself which chapters or lessons you need to have a look at. This manual assumes that you are familiar with the use of common Windows® objects such as menus or common dialogs for loading and saving files.

Also it's recommended that you use this manual together with the online help coming with Pro Motion. The online help can be easily used to search for certain keywords or functions and also displays descriptions for each dialog box when you hit the F1-key.
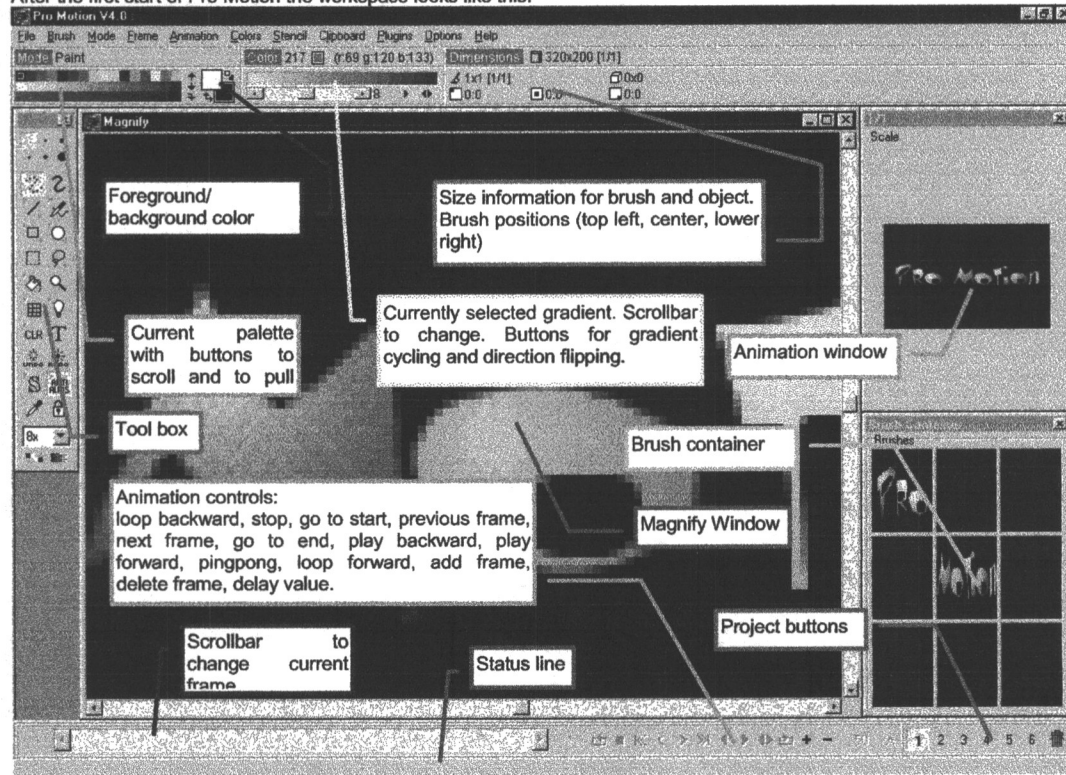
You do not need to read the complete manual before being able to handle this software, but it will make it much easier to understand certain functions and tools. A lot of things can be learned intuitively.

A complete reference is also given at the and of this book. Use it to get brief descriptions for all possible tools and functions.

Guided Tour 1

This section and the next one guide you through the basic functions and tools of Pro Motion.
For a more detailed description of certain functions please have a look at topic „*References*".

After the first start of Pro Motion the workspace looks like this:

The single screen elements are described in the online help (go to menu „Help", entry „Contents") topic „The Workspace". When the application is running you can also move the mouse pointer on a screen element and a short description appears in the status line.

Menu

This menu contains grouped functions and it can be used like every Windows menu. If a certain function can be accessed by a key shortcut it is displayed on the right side of the corresponding menu entry.
For a reference on all menus and functions please have a look at the *Reference* section *Menus*.

Information Panel

Right below the menu line the information panel is displayed.
The basic function of it is to show you information about current colors, gradients or measurement data such as brush or object sizes.
For a detailed description of this panel please have a look at the online help section „The Workspace". There you will be able to click on each element contained in the panel to get informations about it.

Magnify Window

The magnify window displays the current image using the selected zoom level (see toolbox) and you can use its canvas to draw into this image.

Animation Window

This window is used for drawing and for playing back an animation. The menu *Scale* allows you to set the scaling size for the animation frames.

Brush Container

Use the brush container to save single brushes for later use. With the right mouse button you can place a brush into one of the nine containers and with the left mouse button you can retrieve a brush from it. Use SHIFT+left mouse button to swap the current brush with the one in the container field.

Project Buttons

You may use up to 6 different projects which can be accessed through these buttons. Click on a button to create a new project. The trash can is used to delete the current project.

Status Line

The status line shows informations about tools or functions and displays a progress bar when doing time consuming operations such as loading and saving data.

Toolbox

The toolbox contains several drawing tools which are described in the *Reference* section *Toolbox*.

Please refer to this section if you want to know how a certain tool is to be used! Also some tool buttons contain more than one tool. For example there are different line tools which can be accessed by double clicking on the line icon.

Also boxes and circles can be drawn filled and unfilled. Just double click on these tools to choose between filled and unfilled mode.

Tool groups are signed by a little „+" in the lower right corner of the tool icon.

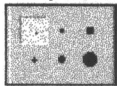If an icon has a little triangle at its top left corner then you can access options for this tool by right clicking on this icon. Here only few options are mentioned. Refer to in the *Reference* section *Toolbox* for details.

Drawing with your mouse

At first you need to select a color you want to draw with. This can be done by clicking on the palette that is displayed in the information panel. Select a foreground color with the left mouse button and the background color with the right mouse button. The colors you select are displayed in the information panel, too.

Now you need a brush to draw with or use the default one pixel sized brush.

You can choose one of the predefined brushes displayed at the top of the toolbox.

The upper row contains rectangular brushes and the lower row contains circular brushes. Both are single colored.

On the toolbox there are different tools you can draw with.

Just for the beginning please select the *Continuous Painting*.

Click with your mouse into the current image (either in the *Magnify* or *Animation Window*). Hold the mouse button and move your mouse to draw for example a circle. Release the mouse button if you finished. If you use the left mouse button the foreground color is used and if you use the right mouse button the background color is used.

Now that you completed a drawing operation you can also make it undone by using the *Undo* tool. *Redo* brings the drawn object back if you removed it with *Undo*.

The single dot paint tool only sets single brush dots to the image. The faster you move your mouse while drawing the larger the space becomes between these dots.

Paint Modes

If you draw using the brush you can select a certain paint mode. This mode can be selected from the menu *Mode*.

The single modes are described at topic *Reference* section *Menu Mode*.

By default the mode „Paint" is selected. That means you simply draw the brush colors on the canvas. Other modes are for example „Brighten" or „Darken" which brighten or darken the image colors instead of drawing with the brush.

Drawing Primitives

Drawing primitives like circles, boxes or lines always work the same way. Select the corresponding tool from the toolbox. Then click on the canvas to start drawing. Hold the mouse button and move the mouse to create the primitive. Release the button to finish.

Line

The line tool enables you to create straight or curved lines, filled or unfilled polygons.

By default the normal line is displayed. To select another line tool double-click on this tool icon and a palette with different line types will be displayed where you can select a tool from:

Polyline

Use the polyline tool to create an unfilled polygon which is built of straight lines connected to each other.

- click on the canvas to set the starting point
- hold the mouse button and move the mouse to create a straight line
- release the mouse button
- move the mouse to create a new line
- click on the mouse button you started drawing with to set the new line or use the other mouse button to finish drawing

Filled Polyline

Draws a filled polygon that can consist of straight lines or freehand drawn parts.

- click on the canvas to start drawing
- draw a polyline as described at the polyline tool
- while holding the mouse button down you can draw a shape freehand
- close the polygon by either setting the end of the last line to the start of the first line or by clicking on the opposite mouse button you started drawing with
- now set the orientation line for the filling mode (gradient filling) by moving your mouse and by clicking the left mouse button

Spline

Draws a three point spline curve.
This tool works the same way as the one for straight lines. Only that you need to define a third point to define the curve.

- click on the canvas to set the starting point for the line
- hold the mouse button and move the mouse to create a straight line
- release the mouse button to set a straight line
- move the mouse to define a curve
- use the mouse button to draw the curve

Spraying Color

This tool sprays single brush dots to the image or simulates an airbrush.
Click on this icon with the right mouse button to set up spray can radius, stepping and pressure.

Rectangle (unfilled / filled)

To choose between the filled and unfilled double-click on the tool icon and select the corresponding tool from the palette that is displayed. Unfilled mode paints a rectangle using the current brush. A filled rectangle uses the current paint mode.

- click on the canvas to set the starting point
- hold the mouse button and move the mouse to create a rectangle
- release the mouse button

Hold the **ALT**-key to draw a square.

Circle (unfilled / filled)

To choose between the filled and unfilled double-click on the tool icon and select the corresponding tool from the palette that is displayed. Unfilled mode paints a circle using the current brush. A filled circle uses the current paint mode.

- click on the canvas to set the starting point (the center of the circle)
- hold the mouse button and move the mouse to create the circle
- release the mouse button

Hold the **ALT**-key to draw a true circle.

Brush Capture

Besides a normal single color brush you may use any part of an image as a brush.
With this tool you can select a rectangular region as a brush.

- draw the initials of your name on the canvas
- select this brush capture tool and click on the top left corner of your initials
- hold the left mouse button and move your mouse to the lower right corner of your initials and release the mouse button
- now you have your initials defined to be your new brush

Pixels which have been drawn in the background color are transparent within the brush.
Repeat the little example but use the right mouse button now for the brush capture. Your initials are now automatically removed from the canvas by filling the area with the background color.

The lasso is also used to capture a brush but it allows you to make a freehand selection instead of a rectangular selection.

Double-click on the lasso tool to change to a polygonal selection mode.

Fill Tool (paint bucket)

The paint bucket is used to fill a region with color.
That means you click on an area of a certain color within the image and this area is filled with a new color.

Example:
- use *Continuous Painting* and draw a closed shape (f.e. a circle) on the canvas
- select this fill tool and click within the shape with either the left or right mouse button
- now the inner shape is filled with a color (foreground or background)

If your shape is not closed correctly the color „runs out" of it and possibly the entire canvas is filled with color.

Magnifier

Use the magnifier to zoom into an area within an image or to increase/decrease the current zoom level.
To zoom into a certain area just select it by creating a bounding rectangle. That means click on the top left corner of the area that is to be zoomed, hold the mouse button and move your mouse to create the rectangle. Release the button to apply the zooming To increase/decrease the zoom level just click on the canvas (in the magnify window) with the left or right mouse button without creating a bounding rectangle.
You may also select a certain zoom level with the corresponding pull down box on the toolbar.

Grid

The grid can be used to let a brush snap to an invisible grid which you can define freely.
So a brush dot is only set on the cross points of this grid.

- switch the grid on
- select one of the built in brush shapes
- select the single dot painting and try to draw something

This tool is also useful if you want to create tile based graphics.

Clear

You can clear the current image by clicking on this icon.
An image is then filled with the current background color.

Text

Use this tool to create a brush that contains text.
You will be taken to a little text editor where you can enter text using any font that is installed on your system.
  - click on this icon
- enter a word into the edit field of the dialog box that has opened
- click „OK" to create the text brush

Now you can place the text anywhere on the image.
The editor is described more in detail in the *Reference* part.

AntiAlias Option

Use this option to remove aliasing effects. Such effects occur, if you f.e. draw a line on the canvas:

The upper line is drawn without and the lower line with the antialiasing option set on.

Pipette

Use the pipette to get a certain color from an image pixel as foreground (left mouse button) or background color (right mouse button).
For a temporary pipette use the **CTRL** key. The pipette will then appear as long as you hold this key down. This is very useful for quick color changes.

Fix Background

This function simply takes the current image and uses it as background. If you now draw something on this image with the foreground color it can be removed again by using the background color. Instead of drawing with the background color the image is restored.

Summary

Now you know about the basic drawing tools of Pro Motion.
Most of these tools can be customized in different ways. How to do this will be described in the next few chapters.

For now lets have a look at how to save and reload your work.

Save Images

To save an image you have created, go to menu *File* and choose the function *Save Image as*.
A dialog box appears where you can choose the drive and directory your image is to be saved to. This is a standard Windows dialog box so you should already know how to use it.

Save Frame/Picture		
Speichern in: 🗀 ip		
Dateiname: Picture		Speichern
Dateityp: PC Paintbrush [*.pcx]		Abbrechen
☐ Mit Schreibschutz öffnen		

You can choose between different file types such as PCX, IFF ...

If you once saved the image and you made some new changes you do not need to always use this dialog box.
Instead you can use the function *Save Image*. This automatically saves the image to its current file again.

Load Images

To load an image simply use the function *Load Image* from the menu *File*.

Load and Save Brushes

Brushes can also be loaded and saved. Use the corresponding functions from the menu *Brush*.

Guided Tour 2

This guided tour will show you some more details about:
- how to create and to modify a custom brush
- how to change the screen size
- how to modify tool options
- how to change the color palette
- how to paint with different paint modes
- how to use animpainting

Custom Brush

As you have seen in the previous guided tour you can define any part of an image as a brush. And to work with different brushes at a time you can put them into the brush container for later use.

Capturing a rectangular Brush

- select this brush capture tool
- click on the canvas, hold the mouse button and move your mouse to define a bounding rectangle and release the button
- the brush becomes a copy of the selected area

Pixels which have been drawn in the background color are transparent within the brush.
Using the right mouse button for the brush capture removes the selected area from the image.
Now you can draw with your new brush just like with the predefined brushes.

Capturing a Brush freehand

Brushes don't need to be rectangular. You may also define a freehand selection that is to be used as a brush.
Use the upper lasso to create a custom brush freehand or the lower lasso to create a polygonal selection. A polygonal selection may contain freehand defined parts. You can change between these tools by double-clicking on them

Freehand:
- click on the canvas to set the starting point of the selection
- hold the mouse button and move the mouse to create a freehand area that defines the image part you want to pick up as a brush
- release the mouse button
- the selection is closed automatically

Polygonal:
- click on the canvas to set the starting point of the selection
- hold the mouse button and move the mouse to create freehand area that defines the image part you want to pick up as a brush
- release the mouse button and move the mouse to create a line to be part of the selection
- hit the mouse button and go to step two or hit the opposite mouse button you started with to finish the selection
- the selection is closed automatically

Now a brush is created from the selected image part. The current background color is automatically taken as the brush's transparent color. If you use the right mouse button to pick up a brush it is removed from the image by filling the selection with the background color

The transparent Color

Each brush has a visible and a transparent part. When creating a custom brush you can choose which color of the image part is to be used as transparent within the brush. This is done by selecting this color as background color before you pick up a brush.
When creating rectangular brushes there is also an option that automatically uses the color of the four corner pixels as transparent if they are equal. This option is called „Autotransparency" and can be switched on in the *Preferences* section *Miscellaneous* in the menu *File*.
As a little example on how to define the transparent color draw something with different colors on the canvas. Now select one of these colors as background color and capture the objects you have drawn with the rectangular brush picker.
Now the parts that have been drawn with the color you have now chosen as background color will be transparent in the brush.
Try the same procedure with another color as background color.

Changing the transparent Color

Once you have picked up a brush you may want to change the color that is transparent for this brush.
To do this go to the menu *Brush* and select the function *Change transparent Color*.
This will bring up a little dialog box:

```
┌─────────────────────────────────────────────┐
│ Transparent Color                        [X] │
│ ┌─ Change transparent Color ────────────────┐│
│ │  Index: 18   R: 214  G: 214  B: 214       ││
│ │  ◄ [  ]                              ►     ││
│ └───────────────────────────────────────────┘│
│     ┌─────────────┐   ┌─────────────┐        │
│     │     Ok      │   │   Cancel    │        │
│     └─────────────┘   └─────────────┘        │
└─────────────────────────────────────────────┘
```

With the slider you can scroll through all 256 colors.
Index shows the current color number and *R,G,B* show the color values of this color.

Brush as Image

Each brush is an image itself. So you can load and save it as if it was a normal picture.
You will find load and save functions in the menu *Brush*.
If you load a brush and it contains a different color palette than the current image then the brush will not be displayed correctly. There are three ways to solve this:

- If you don't need the palette of the current image you can make it use the brush palette. This is done by using the function *Get Palette from Brush* from the menu *Colors*.
- If you need the palette of the image you can remap the brush's colors to the image colors. This is done with the function *Remap Colors -> Brush* from the menu *Colors*. The less the image colors differ from the original brush colors the better the brush will look after remapping.
- If you need the colors of the image which are already in use (contained in the image) you can import colors from the brush. This is done by the function *Import Colors from Brush* from the menu Colors. This function imports the most frequently used colors of the brush into the current image's color palette by replacing unused palette entries. The brush can then be remapped to the new color table.

The directory where you installed Pro Motion to contains subdirectories with different demonstration graphics. There is also a directory called „Brushes".
- Go to the menu *Brush* and select *Load Brush*.
- Load for example the file „Bear.PCX" from the directory „Brushes". Now the brush is not displayed correctly...
- Select the function *Get Palette from Brush* from the menu *Colors*

Because a brush is an image you can manipulate it too. The menu *Brush* includes a lot of functions to modify the brush. All of them are described in detail in the *Reference* part of this handbook.

Brush Grip

By default a brush is always held at its center. But you can change the grip position also to the top left or lower right corner in the menu *Brush ->Grip*. Also a free defined grip position can be selected:
- Select Brush->Grip->Set custom Position
- Go to the canvas so that the whole brush is visible
- Hold the left mouse button and move the mouse to the point you want to have as new brush grip and release the mouse button
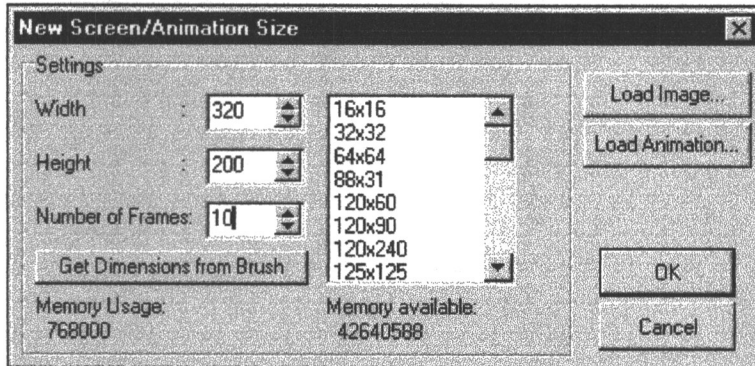

Spare Frame

Besides the normal image you are working on there is a second image that can be used. This image is called *Spare Frame* and you can access it via functions in the corresponding submenu in the menu *Frame*.
So you can copy the current image into the spare frame or vice versa and you can also swap these images.

Screen Size

The size of an image can range from 4x4 to 16384x16384 pixels. But an image can not be larger than 5000*5000=25000000 pixels. To change the image size select *New Screen/Animation...* from the menu file and the following requester appears:

- define the *Width* and *Height* for the new image or animation and set the *Number of Frames* you need (1 for a single image)
- *Get Dimensions from Brush* uses the currents brush with/height and if it's an animated brush the number of frames it contains
- *Memory Usage* shows you the amount of memory the project will need
- *Memory available* shows the free memory that can be used
- With *Load Image / Load Animation* you can create an image/animation from a file

As a thumb rule you should only use three quarters of your **physical** memory. How much physical memory you have installed is not displayed. But if your project uses more than three quarters of it then the memory usage is displayed with red color.
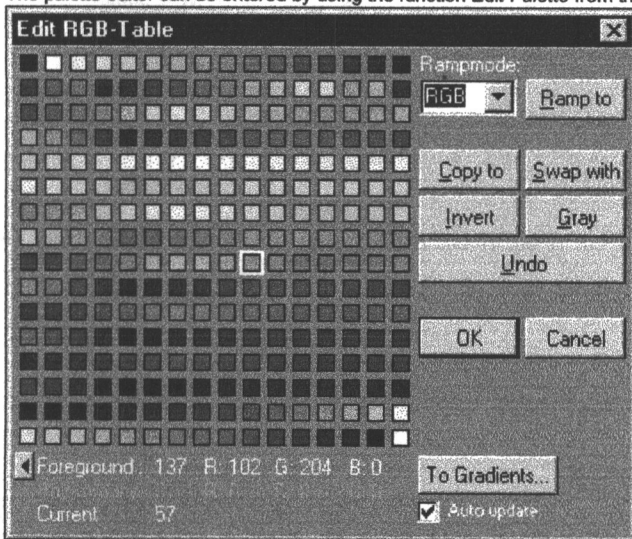

Color Palettes

Each image contains a color palette with up to 256 different colors.
The following topics will show you basic color management and manipulation functions. A more detailed approach on working with colors can be found in the *Tutorials*.

The Palette Editor

The palette editor can be entered by using the function *Edit Palette* from the *Colors* menu:

Palette Editor

Each color entry is a color that can be chosen out of 16.8 Million colors. A color is defined by its red, green and blue intensities. Foreground and background color are defined by left/right-clicking on the color boxes.
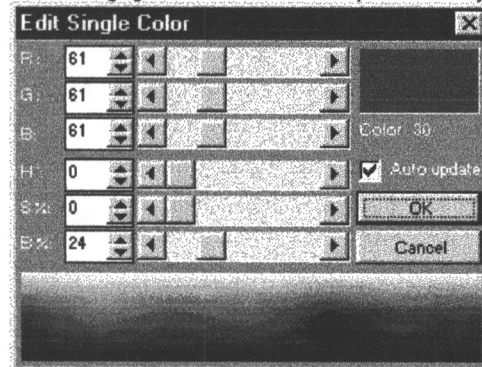Their values (palette index and RGB) are shown below the color table.
To change the color of a certain palette entry just double-click and a color requester appears (see below).
You may also use the little button on the left side of the „foreground" label to open an online color requester that allows immediate color definition. Click on the button again to close it.

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- *Ramp to* allows you to create a smooth color ramp from one color to another one. To do this leftclick on a color where you want to start ramping. Hit the Ramp to button. The mouse cursor becomes a crosshairs. Now leftclick on a second color to calculate a ramp to.
- *Ramp Mode* is used to define the color space where the ramping is to be calculated. You may select from HSV or RGB which yield different results
- *Copy to* allows you to copy a color value from one palette index to another. To do this leftclick on a color where you want to copy the values from. Hit the *Copy to* button. The mouse cursor becomes a crosshairs. Now leftclick on the color you want to copy the values to.
- *Swap with* swaps the color values of two palette entries. Works like Copy to, but swaps the colors.
- *Invert* inverts the color values of the current foreground color.
- *Gray* makes the color values of the current foreground color to a gray value.
- *Undo* makes the last change undone.
- *To Gradients* takes you to the gradient editor (see descriptions for the Gradient Editor).
- *Auto update* immediately makes color changes visible in the current image.

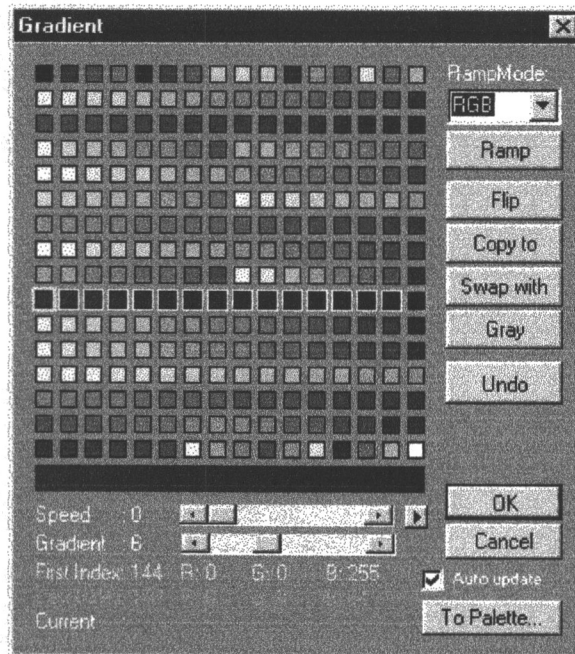When changing color values the color requester is always used:

Use the RGB sliders to change the Red, Green and Blue values of the color.
The HSV sliders change the values for the HSV color model where H=Hue (0..360°), S=Saturation (in %) and V=Value or Brightness (in %)
You can click on the color bar to choose a color directly.

- *Auto update* immediately updates color changes to the image

Requester for color changes

Gradients

A gradient is a range of colors within a color palette. These gradients can be used for color cycling effects of for filling objects to give them a three dimensional look. You can define up to 16 different Gradients using the *Gradient Editor* which can be found in the *Colors* menu:

Gradient Editor

The first color of a gradient is surrounded by a yellow box and the last color by a green box.
To select a new start or end color hold the **SHIFT** key and leftclick on a color to select it as the first color or rightclick to select it as the last color. All colors belonging to the gradient are surrounded by a white box. Below the color table you can see the gradient's look.
Also color data is displayed for the first and last color (index and RGB-values).

- *Ramp* allows you to create a smooth color ramp from the first color to the last color.
- *Ramp Mode* is used to define the color space where the ramping is to be calculated. You may select from HSV or RGB which yield different results.
- *Flip* swaps the first and the last color index and lets you change the gradients direction.
- *Copy to* allows you to copy a gradient to another position.. Hit the *Copy to* button. The mouse cursor becomes a crosshairs. Now leftclick on the color you want to copy the gradient to.
- *Swap with* works like *Copy to*, but swaps the colors instead of copying.
- *Gray* makes the selected gradient to be gray
- *Undo* makes the last operation undone.
- *Auto update* immediately updates color changes to the image
- *To Palette* takes you to the Palette Editor
- The slider besides the label *Gradient* allows you to change between the different gradients

You can also set keys within a gradient selection which are recognized when ramping a gradient. This is done by rightclicking on a color between the first and the last gradient color. Such a key color is marked with a red box.
It is possible to cycle a gradient. That means that the colors are shifted within the defined gradient range. For this purpose you have the *Speed* slider. Here you can give each gradient a unique speed value. This value is defined in steps per second and can go from 0 to 100. If you hold the little play button right besides the speed slider the cycling is activated. Now all gradients

that have a speed different to zero are cycled. As default the cycling can only be seen in the animation window. To cycle the magnify window, too, you can set an option in the *preferences* section "miscellaneous" (see descriptions for menu "File" in the *Reference* section).

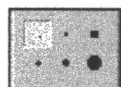How to use a gradient while drawing will be described in the *Painting Tutorials* section.

How to adjust Tools

Drawing tools like freehand drawing, lines, circles and so on are activated by clicking on the corresponding icon on the toolbar. The behavior of some tools can be changed. If this is possible the tool icon contains a little triangle at its top left corner. If you rightclick on such an icon a settings requester will appear.

Built in Brushes

If you rightclick on a brush you will be able to resize the brush.
- choose a brush by rightclicking on its icon
- move the cursor to the canvas
- hold the left mouse button and move your mouse to set a new size

In this resize mode you can use the **ALT** key to switch between normal and proportional resizing.
Use [+] / [-] to increase or decrease the size of the current brush while drawing.

Line, Curve and Circle Tools

Rightclick on one of these icons to enter the dot spacing requester:

Here you can set up how lines will be drawn. You can choose of:
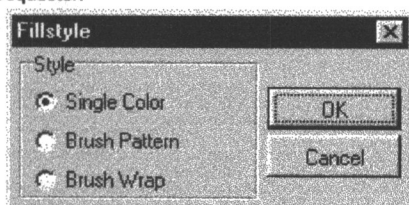
- *Continuous* is the default setting and does not create any space between single dots, but connects them by a continuous line
- *Every Nth Pixel* draws a brush dot after leaving a space of N pixels
- *N total Dots* draws a line that consists exactly of N brush dots
- *N* defines the value needed for the last two modes

Dot Spacing Requester

Filled Shapes

The fill style for circles and rectangles can be changed. Rightclick on one of these icons to enter the corresponding requester:

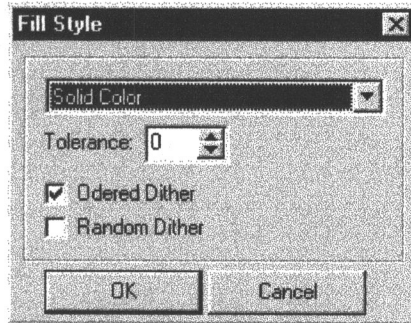- *Single Color* fills with the foreground color using the current paint mode or with the background color
- *Brush Pattern* fills the shape with the current brush as a tiled pattern
- *Brush Wrap* fits the current brush to the shape

Fill style for circles and rectangles

Flood Filling

The flood fill tool and the filled polygon have a different fill style requester. There are fill types for gradient filling. How these fill types work will be described in the painting tutorial *Working with Gradients* and in the *Reference part*.

Fill Style

Solid Color

Tolerance: 0

☑ Odered Dither
☐ Random Dither

OK   Cancel

Fill Type Requester for Flood Filling
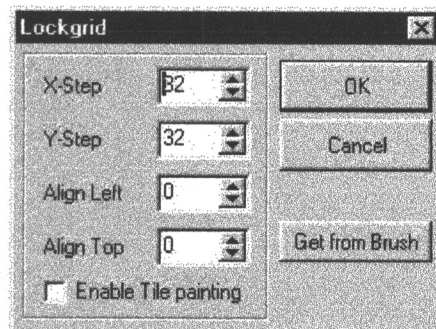
Brush Picker (rectangular)

Rightclicking on this icon restores the last created custom brush. This is useful if you made changes to a brush and you want to have the previously captured brush again.

Grid

The grid can be used to let the brush or mouse position snap to cross points of a defined grid or to create tile graphics. Rightclick on this icon to get into the grid setup:

Lockgrid

X-Step 32   OK

Y-Step 32   Cancel

Align Left 0

Align Top 0   Get from Brush

☐ Enable Tile painting

Lock Grid Requester

- *X-Step* and *Y-Step* define the horizontal and vertical spaces between the grid points
- *Align Left* and *Align Top* set the position for one grid point to define the position of the grid
- *Get from Brush* uses the current brush's width and height for *X-Step* and *Y-Step* and the last position the brush was stamped down for *Align Left* and *Align Top*
- *Enable Tile Painting* starts the tile mode

The grid can be used for all drawing tools except airbrush.
- rightclick on the grid icon and enter 32,32,0,0 in the input field (top to bottom)
- choose the paint dotted tool and draw something on the canvas
- rightclick on the grid icon again and enter 20,20,0,0 in the input field (top to bottom)
- draw again on the canvas to see how the grid has changed

This grid can also be used with the brush picker to create brushes with a fixed size.
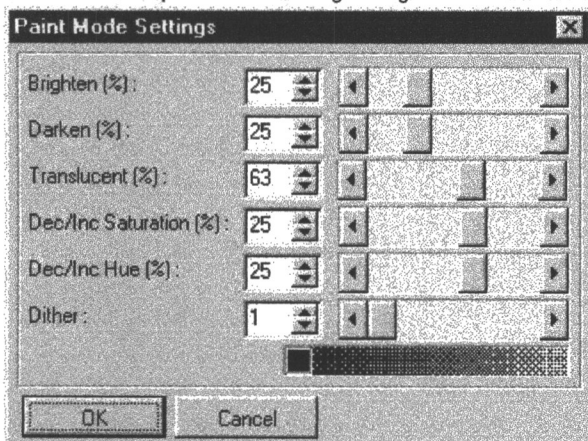Have a look at the *Reference* Part for more descriptions.

Paint Modes

The paint mode which can be selected from the menu *Mode* affect how the color is drawn on the image or which effect is to be applied. Here we will have a look at some of these modes. A detailed description can be found in the *Reference* part.
To see how these modes work we need to have something on the screen. So please load the file „Images\Fantasy.gif". Go to zoom level „1x".

- get the largest round brush available on the tool bar
- choose *Brighten* from the *Mode* menu
- Draw on the image and it will be brightened up slightly
- do the same with the *Darken* mode

You can also set up how much the image is brightened or darkened by using the *Settings...* from the *Mode* menu:

Settings for scaleable paint modes

- *Brighten* is the value for the brighten paint mode and defines how much a color is to be brightened up
- *Darken* is the value for the darken paint mode and defines how much a color is to be darkened down
- *Translucent* mixes colors the following way: result color = x% of brush pixel color + (100-x)% of image pixel color
- *Dec/Inc Saturation*: The value determines if the saturation is to be decreased (value below zero) or increased (value above zero).
- *Dec/Inc Hue*: The value determines if the hue is to be shifted downward (value below zero) or upward (value above zero).
- *Dither* is the dither strength for the corresponding paint mode. The value can be between 0..255 where 0 means no dithering and the larger the value becomes the more foreground color is used for dithering.

This dialog box can stay open while drawing. So you can change certain values quickly without opening and closing it. Below the dither slider you can set up different dither patterns for quick selection.

Most paint modes do not use the current foreground color for drawing, but manipulate the image. To use the foreground color or the brush colors for drawing use the mode *Paint*.
Just play around with the different modes on your own. For example use *Translucent* to mix the brush color with image colors or use *Filter->Soften* to reduce the color contrast.
A detailed description can be found in the *Preference* part.

Before you continue

Before you have a look at the next chapter or before you start to examine Pro Motion on your own here are some hints and previews of important functions. All these functions will be described in more detail in other parts of this handbook.

Keyboard Shortcuts

You can speed up your work by activating functions or tools with the keyboard shortcuts. A list of all available keys and their function is given in the *Preference* part.
Here are some useful keys:

CTRL 1..0	Select different zoom levels (1..10)
CTRL	Transforms to a temporary pipette so that you can pick up a color from the image without changing the tool
U	Undo a drawing step
I	Redo a drawing step again which was removed with Undo
Cursor Keys	Move the canvas (hold SHIFT to flip pages)
B	Brush picker
SHIFT+B	Restore custom brush

Fixing the Background

This is function is very simple but also very useful. If you use a fixed background you can draw on your image and you will always be able to restore parts of it.

- Load the image „Machined.gif" from the *Images* directory
- Go to menu *Frame* and activate the function *Background fixed*. You may also use the corresponding button on the tool bar:

Now the current image is copied to a separate image buffer.

- Draw something on the canvas

- Clear the image by using CLR

What happened? Only the things you have drawn are removed and the original image is restored.

The same happens if you draw using the background color (left mouse button). You can draw on an image with the foreground color and you can then restore the image by drawing with the background color. So the right mouse button acts like an eraser.

To unfix the background simply use the function *Background fixed* from the menu *Frame* or use the tool button again.

AnimPainting

In this tour you have already learned about custom brushes. A custom brush can also be an animation itself. That means a brush contains a range of frames which can animate while drawing. You can create a lot of different effects with such animated brushes. In further chapters you will read more about this topic.
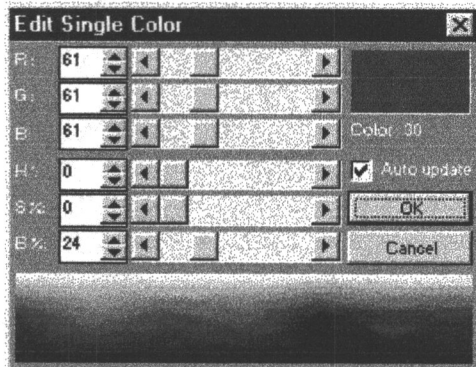
Painting Tutorials

The following tutorials will show you how to work with colors and masks. Pro Motion is a palette oriented drawing program. That means each image or frame has a color palette of up to 256 colors and each single color can be one out of 16.8 million different.
When drawing you select a color from the image's palette. That means that you don't draw directly with a color but with a color index that refers to a color entry in the palette.

Working with Color

The palette currently used is placed at the top left corner of the application's main window. Besides the palette you will find buttons to scroll through or to pull down the complete palette.
You can manipulate this palette to fit your needs. To change a single color just double-click on it and the color requester appears:
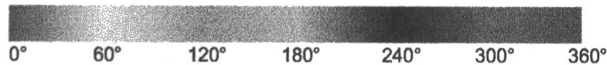

Use the RGB sliders to change the Red, Green and Blue values of the color.
The HSV sliders change the values for the HSV color model where H=Hue (0..360°), S=Saturation (in %) and V=Value or Brightness (in %)
You can click on the color bar to choose a color directly.

- *Auto update* immediately updates color changes to the image. This is useful if you change a color that is already used in the image

The color requester

0°   60°   120°   180°   240°   300°   360°

You can define a color by using the values for the RGB color model or for the HSV model.
When using RGB the color is defined by mixing the values for red, green and blue. For example if R=100, G=100 and B=0 you will get yellow, if R=100, G=0 and B=100 the color will be purple. If R=G=B the resulting color will be a gray value.

The HSV color model works different. The actual color is defined by the Hue value which can be between 0° and 360°, where 0=red and 360=red:

The Saturation can range form 0% to 100% where 0 is a gray value and 100 is full color. The brightness (V= "Value") of a color can range form 0% to 100% where 0% is always black.

The Palette Editor

If you want to change multiple colors you should use the palette editor. It can be opened by using the Palette Editor command from the menu Colors or by using the palette button ▣ on the tool bar.

Palette editor

Foreground and background color are defined by left/rightclicking on the color boxes.
Their values (palette index and RGB) are shown below the color table.
To change the color of a certain palette entry just double-click and the color requester appears as described above.
You may also use the little button on the left side of the „foreground" label to open an online color requester that allows immediate color definition. Click on the button again to close it.

Undo allows you to cancel the last manipulation.
Copy to will copy the currently selected foreground color (white box) to a selected destination color. When using this function the cursor turns to crosshairs and you can click on the destination color.
Swap with works the same way but swaps the selected color with the destination color.
Invert simply inverts the selected color.
Gray creates a gray value from the selected color.

Ramp to...

You can also create smooth color transitions automatically. For example you need a range of colors going from purple to green. This is done with the *Ramp to* function.

- Click on a purple color box to select it as foreground color
- Click on *Ramp to*
- Click on a green color box

Now you have a smooth transition from purple to green. The number of colors between the key colors (purple, green) define the length of the transition.
You can ramp colors in either the RGB color model or the HSV color model, which yield different results.

Auto update is used to apply the color changes directly to the image.
To Gradients opens the gradient editor which will be described in the next section.

A color palette can also be saved to a file. The corresponding load/save functions can be found in the *Colors* menu.

Working with Gradients

Gradients are range selections within a palette. Such gradients can then be used for different drawing modes and effects like color cycling or filling. Pro Motion can handle up to 16 different gradients which can be edited with the gradient editor. This editor can be activated by the corresponding entry in the menu *Colors* or by using the gradient button ▦ on the tool bar.

Gradient Editor

The first color of a gradient is surrounded by a yellow box and the last color by a green one.

To select a new start or end color hold the **SHIFT** key and leftclick on a color to select it as the first color or rightclick to select it as the last color. All colors belonging to the gradient are surrounded by a white box. Below the color table you can see the gradient look. Also color data is displayed for the first and last color (index and RGB-values).

The **Copy to** and **Swap with** functions work the same way as described for the palette editor (see previous section), except that you don't copy/swap single colors but complete color ranges.

Ramp calculates a color transition from the first gradient color to the last one.

You may set up additional key colors within the gradient which are recognized during ramping. This is done by rightclicking on a color within the selected gradient. A key color is surrounded by a red box.

Flip changes the gradient's direction. That means the first gradient color becomes the last one and vice versa.

Gray makes the selected gradient to be gray.

Undo allows you to cancel the last manipulation.

Auto update is used to apply the color changes directly to the image.

To Palette opens the palette editor which was described in the lasts section.

The slider besides the label *Gradient* allows you to change between the different gradients.

Filling Areas with a Gradient

The flood fill tool (paint bucket) ⬧ can use a gradient to create different fill styles. To select a fill style rightclick on this icon and a requester appears:

Fill Style Requester

Here you can select one of the different fill types.

Ordered Dither and **Random Dither** help to create smooth gradient fillings by mixing neighboring colors.

To increase the filling area you can set a **Tolerance** value. If this value is „0" only the selected color area will be used. The large the value becomes the more neighbor colors will be filled too.

To describe the single gradient fill styles select an existing gradient or create a new one, something like white to black or white to red. The gradient should consist of at least 16 colors.

- Clear the current image using the CLR tool button
- Draw a circle on the canvas with a size of at least 100x100 pixels

Now we will use some of the styles to fill this circle. Use the undo tool to restore the circle before filling it again.

- Rightclick on the fill tool to open the style requester
- Select one of the gradient fill styles, click inside the circle to define the area that will be filled, hold the mouse button and move your mouse to select the starting point respectively the direction of the gradient. This starting point doesn't need to be inside the area.

As soon as you release the mouse button the area will be filled.

Circular Gradient
Applies the gradient colors in a circular shape starting with the first color as highlight.

Horizontal Gradient
Applies the gradient colors straight to each horizontal line of the fill area. Beginning with the selected starting point the gradient is drawn to the left and to the right.

Vertical Gradient
Applies the gradient colors straight to each vertical line of the fill area. Beginning with the selected starting point the gradient is drawn to the top and to the bottom.

Linear Gradient
Works the same as vertical or horizontal gradient but you can give it a custom direction after defining the starting point.

Horizontal Line Contour Gradient
Applies the gradient colors straight into each horizontal line of the fill area and scales it to each line width.
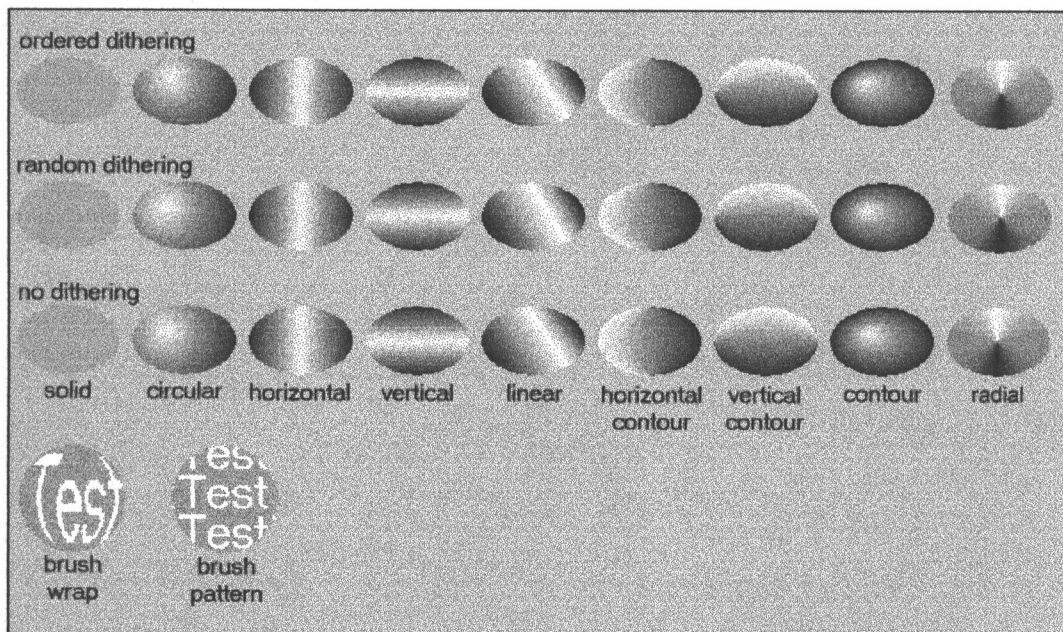
Vertical Line Contour Gradient
Applies the gradient colors straight into each vertical line of the fill area and scales it to each line height.

Contour Gradient
Applies the gradient to the fill area and fits it to the outer shape starting with the first color as highlight.

Radial Gradient
Applies the gradient to the fill area as radial circles around the starting point.

The different fill styles

Gradients can also be used for color cycling effects. There is a special paint mode called *Color Cycle* (see menu *Mode*). When using this mode the current foreground color will be changed while drawing. The color slides through the currently selected gradient.

You can also create color cycling animations that contain only one image! For this purpose the gradient is cycled within the color palette with a certain speed:

- Clear the current image
- Select a gradient
- Select a small brush and choose Color Cycle from the mode menu
- Draw the first letter of your first name on the left half of the image
- Open the gradient editor (press „Q")

Below the displayed color table you will find a *Speed* label. On its right side there is a little scrollbar to define the cycling speed for the gradient. The unit is steps per second and can be between 0 and 100.

- Select a speed of 20
- Close the gradient editor
- Make sure that you can see the letter you have drawn in the animation window. If necessary use the scrollbars to make it visible
- Hit the „*" on the numeric keyboard or use the play button below the gradient display at the top of the screen

Now the gradient is cycled and the corresponding color changes are applied to the image. To stop the cycling just use the play button or „*" again.

The gradient editor has also a cycle button placed on the right side of the speed scrollbar. So you can easily change and test the gradient speed without leaving the gradient editor. But to let the gradient cycle you need to hold this play button down. As soon as you release it the cycling will stop.

You can also cycle more than one gradient at the same time.

- Select another gradient with the *Gradient* scrollbar in the gradient editor but leave the one untouched that you have just used. Also be sure that the new gradient does not share any palette colors with the old gradient.
- Select a speed of 40 for the new gradient
- Leave the editor
- Draw the first letter on the right half of the image using the color cycle paint mode

Now start the gradient cycling again („*" on the numeric keyboard or the gradient play button). Both gradients are now cycling with different speeds. You can also draw during gradient cycling. But to do this you need to switch on the cycling mode for the magnify window, otherwise the colors are not updated correctly. You can set this option in the *preferences* section "miscellaneous" (see descriptions for menu *File* in the *Reference* part). But this may reduce playback speed!

Note: Be sure not to overlap gradients that are cycled. That means that they must not share the same palette colors. Otherwise you will get wrong results!

A gradient animation can only be saved with the file type „lbm" or „iff" because this is the only file format that supports gradients. Also if you need to save simply the gradient information then use this file type. When using „bmp" or „pcx" your gradients will be lost.

A little sample about using color cycling can be found in the *Images* directory: „Cycle.lbm"
Load this file and start the gradient cycling.

Using Masks

Sometimes you need to alter parts of an image leaving the rest untouched. For this purpose you can use masks. A mask defines an area that can be modified while the rest of the image is locked.
Pro Motion know two different masking methods.

The Stencil

One way to define a mask is to lock certain colors (palette indices). That means that these colors can not be painted over.
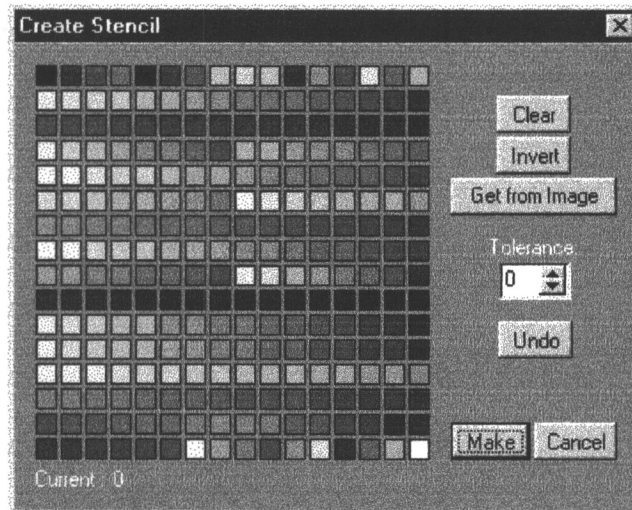
- Load the image file „Stencil.gif" from the *Images* directory

Imagine that we need to grab the word *Stencil* from the image without the background.
This seems to be impossible because the background contains more than one color and the brush picker can only accept a single color as transparent.
So we need to mask out the background.

File „Stencil.gif"

- Open the stencil editor with the *Make Stencil* command from the menu *Stencil* or rightclick on the stencil tool

Stencil creator

- *Colors* that are masked are surrounded by a white box
- to select/deselect a color left-/rightclick on the corresponding box
- *Clear* deselects all colors
- *Invert* inverts all selections
- *Undo* makes all changes undone
- use *Get Colors from Image* to select colors directly from the image. Use this button and then click on certain pixels on the canvas. The dialog remains open.
- A *Tolerance* value can be used to select a group of colors which are near to the actual selected color
- *Make* creates the mask
- *Current* shows the color index under the mouse cursor

We know that the background contains a gray color shade. These gray values are defined in the second line of the color table.
- To define these gray values as masked simply leftclick on each of these 16 boxes (or hold the left mouse button and move your mouse). The boxes will be marked with a white border. If you rightclick on a box it will be deselected.
- Click on the *Make* button

Now the stencil is active. Thus the stencil button at the tool box is down.
- Now select one of the predefined brushes and draw right across the image

As you can see the masked background remains untouched and only the area within the word *Stencil* is altered.
- Hit „U" to restore the image

- Activate the brush picker
- Pick up the word *Stencil*

Now you have the captured word as your new brush without the background!
To deactivate the stencil use the *Stencil On* function from the menu *Stencil* or leftclick on the stencil tool in the tool box.
The stencil can be used together with any drawing tool except the fill tool.

Image Masks

If you need to lock parts of an image which can not be defined with color masking then you can use an image mask.
An image mask is an image that describes which parts are to be locked and which can be modified.
- Load the image „Mask.gif" from the directory *Images*

Mask.gif

Shade.gif

- Copy this image to the spare frame by pressing CTRL+J or use the corresponding function from menu *Frame*
- Load the image „Shade.gif" from the directory *Images*
- Rightclick on one of the predefined round brushes in the tool box to get into the brush resize mode
- Resize the brush to a size of around 60x60
- Select *Invert* from the menu *Mode*

Now we have the mask image in the spare frame and the color shade as current image. To use the mask image we need to activate the masking mode.
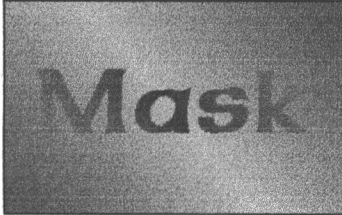
- Go to menu *Options* and activate *Use Spare Frame as Mask* (ALT+A)

As soon as the masking mode is activated an „M" appears in the information panel (top left of the screen).

- Now move the brush over the canvas

You can see the brush is only visible within the word *Mask*.

- Start drawing across the image until the complete word „Mask" is visible

This should be the result.
The masking can also be used together with antialiasing. That means that the mask edges are softened.

The result

You can of course modify the mask to your wishes.

- Press „ALT+A" to disable the mask
- Press „J" to swap the current image with the spare frame

Now you can edit the mask with any drawing tool. All areas drawn with color 0 are locked and all other areas can be modified in the masked image. That means you can use all colors not equal to 0. The best way is to use color 0 (as black) and color 255 (as white). This is useful because you can then easily invert the mask or parts of it by using *Invert* from the menu *Mode*.
Before you can use the mask image, it must be copied to the spare frame again!

Animation Basics

Pro Motion's main purpose is to create animations, not only images. This chapter will guide you through some of the functions that will help you to create smooth animations.

First of all create a new image that is 320 pixels wide and 200 pixels high. Now we need to specify how much frames our animation will use.
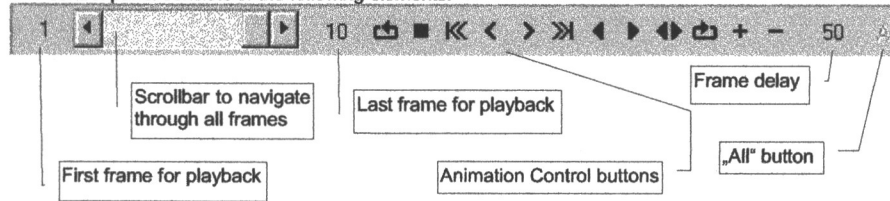
- Go to menu *Animation* and select *Number of Frames*
- Enter „10" in the given input field and confirm with OK

Now we have an animation that contains 10 frames with a size of 320x200 pixels each.

Pro Motion automatically activates the animation control panel at the bottom of the main window as soon as you have more than a single image in your project.

The Animation Control Panel

The control panel consists of the following elements:

All animation playback functions refer to the selected range of frames. That means only the part of the animation that is selected with „First frame for playback" and „Last frame for playback" will be played. The scrollbar can be used to quickly jump to certain frames.

ᵔᔆ	Shortcut: Shift+4 Loops animation backward until Stop is pressed
■	Shortcut: ESC Stops animation playback
K‹	Shortcut: Shift+1 Jumps to the first frame
‹	Shortcut: 1 Goes to the previous frame
›	Shortcut: 2 Goes to the next frame
›‹	Shortcut: Shift+2 Goes to the last frame
◀	Shortcut: Shift+5 Plays animation backward one time
▶	Shortcut: 5 Plays animation forward one time
◀▶	Shortcut: 6 Plays animation pingpong until Stop is pressed
ᔆᵔ	Shortcut: 4 Loops animation forward until Stop is pressed
+	Shortcut: Ctrl+Ins Inserts a frame to the current position Use Ctrl while clicking on this button to insert a range of frames
−	Shortcut: Ctrl+Del Deletes the current frame Use Ctrl while clicking on this button to delete a range of frames

The „Frame delay" can be set with two different modes:
1. Each frame has an own delay value that is used before the next frame is displayed. The delay must be given in milliseconds (ms). This is the default mode. When using this mode the „All" button can be used to set the current delay value to all selected frames. Use Ctrl and this button to set the current delay value to a certain range of frames.
2. The delay is given in frames per second and thus all frames have the same delay value. This mode can be switched on in the *Preferences* (menu File) section *Miscellaneous*.

When you start a playback mode the animation is centered to the screen and the playback starts. As soon as the animation stops the window is placed to its old position again. This is the default behavior which can be changed in the *Preferences*, too. The title bar of the animation window always contains the current frame number and the number of frames.

Drawing a simple Animation

Now we want to create our first animation. The easiest way to do this is to draw each frame step by step.
- Go to the first frame of the animation (use the corresponding button from the control panel)
- Select the largest round brush from the tool box
- Draw a single brush dot at the top left frame corner
- (*) Go to the next frame
- Draw the next dot right beside the position of the last one
- Go to (*) and repeat the last two steps until you get to frame one again

That's it. To play the animation you have created use one of the different playback buttons of the control panel for example loop

forward . The playback can be stopped by pressing ESC or using the stop button.

AnimPainting 1

The AnimPainting feature helps you to switch to the next frame automatically while drawing.
- Clear all frames of the animation (rightclick on the CLR tool...)
- Go to the first frame of the animation
- Select the single dot drawing tool
- Hold the ALT-key and start drawing slowly

What happens?
The frames are flipped automatically and on each frame only a single dot is drawn. When the last frame is reached the first frame is selected again. Play the animation after you have finished drawing.

Creating Animations with the Keyframer

With the built in keyframer you can create animations from your brush in 3d-space.
The basic idea is that you have two keyframes and you define the brush position and rotation for each keyframe separately and Pro Motion calculates the steps needed to move and rotate the brush from the first to the second keyframe.
Because we are working in the three dimensional space we will have a short look at the coordinate system that is used:

The X, Y, Z axes are used to place an object into the space. Where X describes the horizontal, Y the vertical and Z the depth position.
The larger the Z value the deeper the object is placed into the background. When the object is displayed on a 2d screen then it becomes smaller the deeper it is placed into the depth.
If X=Y=Z=0 then the object is placed to the screen center.
The same axes are used to rotate an object. So you can rotate around each axis separately where the rotation point is the brush center.

3d Coordinate System

- Create a new animation 320x200 with 1 frame
- Load the file „Brushes\Pro_Motion.pcx" as brush
- Apply the brush color palette to the current frame (menu *Colors->Get Colors from Brush*)
- Set the number of frames to 36 (menu *Animation->Number of Frames*)
- Select *Paint* from menu *Mode*

Now we will have a look at the keyframer.

3d Keyframer

This requester can be found in the menu *Animation->Create Animation*.
At its top you will find three images displaying the brush state of the first keyframe, the preview image and the last keyframe. The brush is always displayed as a wire framed rectangle. For each keyframe you can set a frame number within your animation in the corresponding input fields. We want to create an animation from frame 1 to frame 36.
- Enter „1" to the *Frame* input field of the left keyframe and enter „36" to the *Frame* input field of the right keyframe

Below each keyframe there are input fields to set the data for the brush position and rotation.
- Enter a Z Position value of 2000 for the first keyframe

As you can see the wire frame displayed in the window for the first keyframe gets smaller because the brush is placed deeper into the background.
- Press the *Preview* button

The brush is moved from the depth (0,0,2000) to the normal (0,0,0) position set in the second keyframe.
- Reset the position settings for the first keyframe to (0,0,0) by pressing the „C" button on the left side of the corresponding input fields
- Enter a Z Rotation value of 45 for the first keyframe

Now the brush is rotated 45° counter clock wise along the Z-axis. Use the *Preview* button again to see the movement.
- Erase all input fields by pressing the corresponding „C" buttons

The input fields for the *Brush Grip* define a point relative to the brush center that is used for translation (positioning) and rotation. By default the brush grip is (0,0,0) which sets the point to the brush center. You can change these values by hand or you can set the brush grip using the function *Set custom Position* at menu *Brush->Grip*.
- Set X value for the Brush Grip to „-126"
- Set the Y value for the rotation at the first keyframe to „360"
This makes the brush to rotate around its left vertical border. Check it out using the preview.

- Erase all input fields by pressing the corresponding „C" buttons (also for the *Brush Grip*)

The keyframer contains some switches and functions that can be used:
- *Clear Frames* erases each frame of the animation before rendering.
- *Trace* copies the previous frame to the current frame that is to be calculated to create a trace of the brush movement
- *Spare Frame as Background* uses the *Spare Frame*) as background image for each frame. The animation is drawn on this image.
- *Linear*, *Accelerate* and *Decelerate* define the kind of movement.
- *Cycle* calculates an animation, that can be played as loop. If the first frame and the last frame are identical, an animation jerks a bit, this can be removed with *Cycle*. The last frame will be calculated that it has a smooth passage to the first frame.
- The *B* buttons can be used to put the last position, where the brush was drawn to, into the corresponding edit fields. So you can stamp a brush down to the canvas (f.e. in the magnify window), go to this animation requester and hit a *B* button where these coordinates have to be used. This gives you the possibility of pixel precise positioning.
- The *S* buttons swap the corresponding values between first and last keyframe
- *Frames Modulo...* calculates an animation that has the given number of frames. That means, that an animation, which is f.e. 40 frames long, will be calculated into 20 frames when using "*...Modulo*: 20". To do this the 21st frame will be calculated into the first frame (the frame number selected as *First Frame*) and so forth.

Now we have finished the theory and we will start to render some animations. The following examples are described shortly. But if you follow all steps you will get a feeling for how certain functions work and how they can be combined.

A flying Logo
To ensure that we start from the same point please...
- Create a new animation 320x200 with 1 frame
- Load the file „Brushes\Pro_Motion.pcx" as brush
- Apply the brush color palette to the current frame (menu *Colors->Get Colors from Brush*)
- Set the number of frames to 36 (menu *Animation->Number of Frames*)
- Select *Paint* from menu *Mode*
- Go to the keyframer (menu *Animation->Create Animation*)
- Enter „1" to the *Frame* input field of the left keyframe and enter „36" to the *Frame* input field of the right keyframe
- Set all input fields to „0"
- Enable *Clear Frames*

The aim is to let the brush fly from the depth to normal position and to let it rotate around a point that is placed at the brush XY-center but some distance into the depth. This will make the brush dangle. The file „Animations\FLLogo1.flc" contains the result.
- Set the Z position of the first keyframe to 1500
- Set the rotation values to X=45, Y=90, Z=270
- Set the brush grip to Z=50

That's it. You may use the preview to see the movement.
Now click on *Make Animation* to render.
When the calculation finished use the pingpong button for playback.

Bouncing Ball
To ensure that we start from the same point please...
- Create a new animation 320x200 with 1 frame
- Load the file „Brushes\GrayBall.pcx" as brush
- Apply the brush color palette to the current frame (menu *Colors->Get Colors from Brush*)
- Select *Paint* from menu *Mode*
- Go to the keyframer (menu *Animation->Create Animation*)
- Set all input fields to „0"
- Enable *Clear Frames*

The aim is to let a ball roll in from the left, to let it bounce on the right screen border and to let it roll back. The file „Animations\BounBall.flc" contains the result.
- Enter „1" to the *Frame* input field of the left keyframe and enter „20" to the *Frame* input field of the right keyframe
- Set the X position of the first keyframe to -202 and to 120 for the second keyframe
- Set the rotation value for the first keyframe to Z=270
- Enable „accelerate"

The ball will accelerate from left to right. After you rendered the animation use the pingpong mode for playback. The animation you then see is what we want to reach with normal playback. We need to render the second half of the sequence backward so that the ball decelerates from right to left.
- Go to the keyframer (menu *Animation->Create Animation*)
- Leave all values as they are, but enter „40" to the *Frame* input field of the left keyframe and enter „21" to the *Frame* input field of the right keyframe

Now click on *Make Animation* to render.
When the calculation finished use the play forward button for playback. You can see that an animation can also be calculated backward.

Masking and the Keyframer
To ensure that we start from the same point please...
- Create a new animation 320x200 with 1 frame
- Load the file „Brushes\GHBar.pcx" as brush
- Load the file „Images\Mask.gif" as current frame

- Apply the brush color palette to the current frame (menu *Colors->Get Colors from Brush*)
- Press „Ctrl+J" to copy the frame to the spare frame
- Select *Paint* from menu *Mode*
- Switch on the Masking mode (menu *Options->Use Spare Frame as Mask*)
- Enable anti-aliasing ![ANTI ALIAS]

The masking described in the *Painting Tutorials* can also be used together with the keyframer.
We now want to create an animation where a text is illuminated by a moving bar.
The file „Animations\MaskBar.flc" contains the result.
- Go to the keyframer (menu *Animation->Create Animation*)
- Set all input fields to „0"
- Enable *Clear Frames* and *linear*
- Enter „1" to the *Frame* input field of the left keyframe and enter „40" to the *Frame* input field of the right keyframe
- Set the positions for the first and last keyframe to X=-160, Y=101
- Set the rotation value for the second keyframe to Z=-90
- Set the brush grip to X=-156, Y=30

After rendering the animation use the loop forward playback mode. The brush is only visible at the areas defined by the mask image. Just like when drawing with a mask.

Rotating Planet

To ensure that we start from the same point please...
- Create a new animation 320x200 with 1 frame
- Load the file „Brushes\Planet.pcx" as brush
- Load the file „Images\Sun.pcx" as current frame
- Apply the brush color palette to the current frame (menu *Colors->Get Colors from Brush*)
- Press „Ctrl+J" to copy the frame to the spare frame
- Select *Paint* from menu *Mode*

The aim of this sample is to show how to rotate an object around a certain point. We will make a planet cycle around the sun. The sun image is set to the spare frame and will be copied to each animation frame as background. To make the planet rotate around the sun we need to modify the brush grip. This animation will be one of that type where the last frame equals the first frame. That means you can play it as a loop and the *Cycle* feature must be turned on.
The file „Animations\PlanetSun.flc" contains the result.
- Go to the keyframer (menu *Animation->Create Animation*)
- Set all input fields to „0"
- Enable *Clear Frames, Spare Frame as Background, Cycle* and *linear*
- Enter „1" to the *Frame* input field of the left keyframe and enter „36" to the *Frame* input field of the right keyframe
- Set the brush grip to X=-70
- Set Z=360 as the rotation value for the last keyframe

The brush grip X-value defines the distance between planet and sun. Have a look at the movement with the preview function.
After rendering the animation use the loop forward playback mode.

Interactive Positioning

There is an easier way to place or to rotate the brush instead of typing the XYZ values. Click on either the first or the last keyframe image to enter the movement/rotation requester:

The interactive brush move/rotate requester

Here you can place the brush position/rotation with your mouse. That means you click on the preview area and move your mouse to change the position/rotation.

To chose between editing rotation or position use the corresponding radiobutton. *Mouse control* defines which mouse movement changes which coordinate value:

Mouse Control	Mouse Movement X	Mouse Movement Y
XY	X	Y
XZ	X	Z
ZY	Z	Y
X	X	none
Y	none	Y
Z	Z	none

Possible mouse movements

You may also enter values into the edit fields directly. Each input must be finished by pressing the ENTER key!

Show Frame allows you to display the corresponding frame image if available behind the wire frame. This can help you to place the brush more exact.

Animated Brushes

Up to now we used to create animations with a normal brush. Pro Motion also supports animated brushes which are animations themselves. While drawing this animated brush can be played. The next few chapters describe how to create and to use animated brushes.

Capturing an animated Brush

To create an AnimBrush we need of course an animation to capture the brush from.
- Load the animation „Animation\RotBall.flc"

This Animation shows a rotating ball.

We need to define how much frames we want to pick up as an animated brush.
- Go to menu *Brush->AnimBrush->Settings* to enter the settings requester for AnimBrushes

Settings for animated brushes

- *Frames to grab* defines the number of frames that are to be picked up into the animated brush when it is created.
- *Animate* shows the direction for the AnimBrush playback (backward, none, forward, pingpong)
- *Animation Step* describes the frames that have to be used while playback (1=each, 2=each second, 3=each third ...)
- With *Current Frame* you can jump to a certain frame of the current AnimBrush

We want to pick up the whole animation. It contains 36 frames.
- Enter „36" as the value for *Frames to grab* and hit OK

An AnimBrush can be created with the normal brush picker tool .
- Go to frame 1 and select the brush picker from the tool box
- Pick up the ball as a brush but hold the ALT-key

The ALT-key makes Pro Motion to pick up 36 frames from the current animation as an AnimBrush.
Draw something on the canvas. As you can see the brush animation is played back while you are drawing.

Load/Save an AnimBrush

The functions for loading and saving an AnimBrush are located in the menu *Brush->AnimBrush*.
AnimBrushes should never contain different color palettes for its frames, when you are using them for drawing.

Using an AnimBrush

An AnimBrush can be used together with the keyframer to combine different movements or to move an animation for example a walking man.
- Create a new animation 320x200 with 1 frame
- Load the file „AnimBrushes\Count0_9.flc" as AnimBrush (*Brush->AnimBrush->Load*)
- Apply the brush color palette to the current frame (menu *Colors->Get Colors from Brush*)
- Select *Paint* from menu *Mode*

We want to create a little counter that goes from 0 to 9 and the numbers will move from left to right. The AnimBrush you loaded has 10 frames containing the numbers 0 to 9. When you start drawing with this brush the numbers are changing. This is also possible when using the keyframer. So we only need to define a left to right movement. The file „Animations\Counter.flc" contains the result.
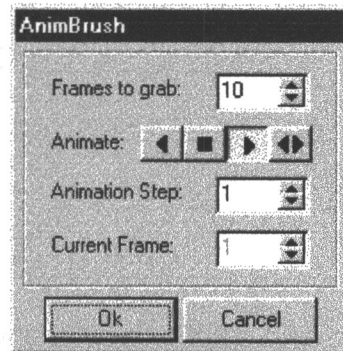- Jump to the first frame of the AnimBrush (press SHIFT+7, or use the corresponding function from the *Brush->AnimBrush* menu)
- Go to the keyframer (menu *Animation->Create Animation*)
- Set all input fields to „0"
- Enable *Clear Frames, linear* (all other switches must be turned off)
- Enter „1" to the *Frame* input field of the left keyframe and enter „10" to the *Frame* input field of the right keyframe
- Set the position for the first keyframe to X=-140 and for the last keyframe to X=140

After the animation is rendered use the loop forward playback mode.
To make the counter cycle once during a second we need to adjust the playback speed. If you are using the frames per second delay scheme enter „10" for the delay value. If you are using the millisecond delays enter „100" as delay value and set this value to all frames using the „A" button near the delay input field. Now our counter is like a stop watch for a tenth of a second.

AnimPainting 2

As you remember the AnimPainting automatically flips the frames while you are drawing. This also works with AnimBrushes. So when the animation frame is flipped the AnimBrush frame is flipped too.

- Create a new animation 320x200 with 1 frame
- Load the file „AnimBrushes\RotBall.flc" as AnimBrush (*Brush->AnimBrush->Load*)
- Apply the brush color palette to the current frame (menu *Colors->Get Colors from Brush*)
- Select *Paint* from menu *Mode*
- Set the number of animation frames to 20 (menu *Animation->Number of Frames*)

Hold the ALT-key to enable the AnimPainting and draw on the canvas from left to right.

You can also create a straight movement using the line tool.

- Clear all frames
- Rightclick on the line tool to enter the dot settings requester
- Use the *N total Dots* function and set the value for N to 20. This will create a line that consists of 20 brush dots only
- Go to the first frame of the animation
- Hold the ALT-key and draw a straight line from left to right

Now each of the 20 brush dots created by the line tool will be placed on a single frame and the AnimBrush is played back. So the result is that the ball rolls from the left to the right screen border.
This function is also possible with the curve tool.

Note: The AnimPainting with lines and curves can not be made undone with the undo tool.

The Light Table

The light table is a very powerful tool that helps you to create smooth animations. You can put different animation frames on top of each other and all of them can be seen at the same time. This effect is also called onion skinning.
So you draw different key frames of your animation and then you can draw the animation steps between them while the keyframes are displayed in the background. On top of the light table the current animation frame is displayed.

- Load the file „Animations\counter.flc" as animation
- Rightclick on the light table tool on the toolbar (bulb) or use the function *Animation->Light Table->Adjust Light Table*

Now we will have a closer look at the settings requester for the light table.

Requester for the light table setup

Layer are the different layers on the light table. Where "1" is the upper image and "12" is the lowest one. For each of these levels you may select a certain *Project* where an image is to be taken from. With *Show* you can select which frame is to be shown. You may choose the *Spare Frame* of this project or a regular *Frame*. Up to twelve layers can be used.
Position specifies the position relative to the current frame number. A value of "-1" shows the previous frame and "2" the next but one.
Brightness adjusts the brightness an image layer is displayed with, where 0 is normal brightness.
The current frame of the animation is always displayed on top with normal brightness.
Use Color displays a layer using a single color that can be chosen.
The *Transparent Color* is used to define a color where the next underlying image is to be displayed instead.

We want to make the light table to display the previous and the next frame in the background. Layer „1" will be used for the previous frame and layer „2" for the next one.

- Select layer „ 1" using the upper scrollbar
- As project for this layer select „1" which is the current project
- Activate *Frame* and set its position to -1 (=current frame -1)
- Set the *Brightness* to -60%
- Disable *Spare Frame* and *Use Color*
- Set *Transparent Color* to 0
- Hit OK to close the requester
- Go to frame „1"

Now the light table is switched on and you can see the current frame with normal brightness displaying a „0". Also the previous frame is displayed which is frame „10". This frame contains a „9" and it is displayed 60% darker.

- Rightclick on the light table tool again or use the function *Animation->Light Table->Adjust Light Table*
- Select layer „ 2" using the upper scrollbar
- As project for this layer select „1" which is the current project
- Activate *Frame* and set its position to 1 (=current frame +1)
- Set the *Brightness* to -30%
- Disable *Spare Frame* and *Use Color*
- Set *Transparent Color* to 0
- Hit OK to close the requester
- Go to frame „1"

The light table displays also layer 2 which contains the next frame. This frame is displayed 30% darker than the current frame and shows the „1".
As soon as you go to another frame the light table updates its layers. For example go to frame 5. What happens? The light table displays „4" and „6", too.

The light table can remain active when you start playing an animation. See *preferences* section "miscellaneous" for the corresponding option (descriptions for menu "File")
Please notice that if you select brightness<>0 the playback speed will be quite slow.
It is recommended to select automatic brightness control in the *preferences*.
The playback speed also slows down if the images shown by the light table have different color tables!

Note: The light table does not use true transparency. So the keyframes for an animation should be outlines. Otherwise the different layers would hide each other.

Animation Effects

This chapter will show you how to create different transition effects. A transition effect means that an image is transformed into another one.

Using the Keyframer for Transition Effects

You can use the keyframer easily to make an image move onto another one. But to do this the images must use the same color palette!

Clapping Image

Here is the first example where an image claps over another one...

- Create a new animation with a size of 320x256 containing one frame
- Load the image „Images\Fantasy.gif"
- Enable the „Import Images as Frames" mode in the preferences section „Miscellaneous". This is needed to append another image file to the animation.
- Add a frame to the animation using the „+" button on the animation control panel (or hit CTRL+Ins)
- Load the image „Images\Machined.gif" to the new frame

These images have a different palette so we need to equalize them. This can be done with the menu entry *Colors->Single Palette*.

- Select „1" as first frame and „2" as last frame
- Enable „Optimized Palette"
- Enable „Dithering"
- Hit OK

Now a new palette for both images is generated and applied.

The keyframer only works with brushes, so we need to pick up the entire second frame as a brush. The first frame will be our animation background where the second frame animates over it.

- Copy the first frame to the spare frame (menu *Frame->Spare Frame->Frame -> Spare Frame*) to use it as background with the keyframer
- Go to frame 2 and pick up the entire frame as brush (hit Ctrl+B)
- Select the paint mode *Replace* from menu *Mode* (this will switch off the brush transparency)
- Enter the keyframer (*menu Animation->Create Animation*)

What we will do now is to make the second image to clap over the first image from the left screen border.

- Enable „Clear Frames" and „Spare Frame as Background"
- Set first frame to „1" an last frame to „15"
- Set the X-value for the „Brush Grip" to „-160". This will later make the brush to rotate around its left border.
- Also set the X-values for first and last position to „-160"
- The „First Rotation" receives an Y-value of -100
- All other fields must be zero or disabled

Use the preview button to see how the animation will look like and hit „Make Animation" to finalize it.
The result should look like the file „Animation\Trans1.flc".

Wind-Screen Wiper

This is a second and more advanced example about using the keyframer for transition effects. We will make the second image to be displayed as if it would be laid on by a wind-screen wiper.
Because this example is much more difficult to do, please be sure to have some experiences with using Pro Motion. Otherwise it's possible that you don't understand why certain steps are done.

- Create a new animation with a size of 320x256 containing one frame
- Load the image „Images\Fantasy.gif"
- Enable the „Import Images as Frames" mode in the preferences section „Miscellaneous". This is needed to append another image file to the animation.
- Add a frame to the animation using the „+" button on the animation control panel
- Load the image „Images\Machined.gif" to the new frame

These images have a different palette so we need to equalize them. This can be done with the menu entry *Colors->Single Palette*.

- Select „1" as first frame and „2" as last frame
- Enable „Optimized Palette"
- Enable „Dithering"
- Hit OK

Now a new palette for both images is generated and applied.

- Copy the second frame to the spare frame (menu *Frame->Spare Frame->Frame -> Spare Frame*)

We will now use the paint mode „Rub through" which will make the image in the spare frame appear at the areas the brush is drawn. So actually our brush will not contain any graphics that is used for drawing, but the brush movement created with the keyframer will reveal the image in the spare frame.

For backup purposes it could be useful if you picked up both images we just have made to use a single palette and if you placed them into the brush container. If something goes wrong when using the keyframer you can then easily rebuild both images.

We still need a brush that will work as the wind-screen wiper. It must be large enough to also reach the image corners.

- Rightclick on one of the predefined rectangular brushes to enter the brush resize mode
- Make the brush to have a size of 320x100 pixels
- Select the paint mode „Rub through" from the menu *Mode*

Our animation will contain 15 frames and before applying the effect all frames must contain the first image, so that the second image can be drawn over it step by step.

- Set the number of frames to 15 (menu *Animation*)
- Enter the Copy Frames requester by using menu *Frame->Copy*
- Copy the first frame to frames 2-15

To make the rectangular brush to move like a wind-screen wiper we need to rotate it around its top left corner. You can easily set the grip to this position with the function *Brush->Grip->Set custom Position*. We will set the grip manually in the keyframer.

- Enter the keyframer (*menu Animation->Create Animation*)
- Set the first frame to 2 and the last frame to 15
- Set the brush grip to X=160 and Y=50
- To make the brush's top left corner to be in the lower frame center set the position values for the first and last frame to Y=-128
- The wind-screen wiper is to move from left to right, so enter for the last frame's rotation Z=-180
- All other fields must be set to zero
- Enable „Trace" this will make the brush to create a movement trace. That means the parts which are revealed in a frame are automatically copied to the next frame.
- All other options must be disabled

Watch the brush movement with the preview button and finalize the animation with „Make Animation".
The result should look like the file „Animation\Trans2.flc".

Conclusion

With the keyframer you can create dozens of different transition effects or brush movements. It's a question of your own fantasy and your experiences with Pro Motion's functions.

Always keep in mind that the keyframer calculations can not be made undone. So always use a second project or the brush container to backup your graphics or save them as temporary files.

You may use any paint mode together with the keyframer except the filters.

Built in Transition Effects

Pro Motion includes several built in transition effects. The requester that is used to apply these effects can be found at menu *Animation->Effects*.

Effect describes the type of effect that is to be applied to the animation. *First Frame* and *Last Frame* define the frame range the effect will use.

Effects Requester

When applying an effect the transition always starts with the first frame and ends with the last one. That means to create and effect in reverse order just swap the values for first and last frame.

So for example to fade out an image over 20 frames (1-20):
- copy it to frame 1
- enter 1 as first frame, 20 as last frame
- use the Fade Out Effect

But if you want to fade in the image you must
- copy it to frame **20**
- enter **20** as first frame, **1** as last frame
- use the Fade Out Effect

Note: Depending on the type of effect chosen, additional checkboxes or edit fields can appear to change certain effect settings. Also it is very important that if you use effects where image parts of the first and last image are visible then both images need to use the same color palette!

The transition effects are quite hard to describe. So here are only brief descriptions of how they work. In the directory *Animations\FX* examples of all effects can be found.

Shifting Bars (horizontal)
The images are divided into horizontal bars. The bar height can be defined with *Bar Height*.
During transition the last frame is shifted over the first frame, where alternately a bar is shifted from the left and from the right side. That means all odd bars (1,3,5...) are shifted from left to right and all even bars are shifted from right to left.
See file *Animations\FX \ShiftBH.flc*

Shifting Bars (vertical)
The images are divided into vertical bars. The bar width can be defined with *Bar Width*.
During transition the last frame is shifted over the first frame, where alternately a bar is shifted from the top and from the bottom border. That means all odd bars (1,3,5...) are shifted from top to bottom and all even bars are shifted from bottom to top.
See file *Animations\FX \ShiftBV.flc*

Stepping Bars (horizontal)
The images are divided into horizontal bars. The bar height can be defined with *Bar Height*.
During transition the last frame is copied on the first frame, where at first all odd bars (1,3,5...) are copied from top to bottom and then all even bars are copied from bottom to top.
See file *Animations\FX \StepBH.flc*

Stepping Bars (vertical)
The images are divided into vertical bars. The bar width can be defined with *Bar Width*.
During transition the last frame is copied on the first frame, where at first all odd bars (1,3,5...) are copied from left to right and then all even bars are copied from right to left.
See file *Animations\FX \StepBV.flc*

Window Shade (horizontal)
The images are divided into horizontal bars. The bar height is automatically defined by the number of frames used for the effect.
During transition the last frame is copied on the first frame, by lifting the bars up. So it looks a bit opening a window shade.
See file *Animations\FX \WShadeBH.flc*

Window Shade (vertical)
The images are divided into vertical bars. The bar width is automatically defined by the number of frames used for the effect.
During transition the last frame is copied on the first frame, by lifting the bars aside.
See file *Animations\FX \WShadeBV.flc*

Growing Window
The last image is copied over the first one using a window that starts from the center and grows to the full size of the image.
See file *Animations\FX \Grow.flc*

Fade Out/In
Fading Out means that the brightness of an image is turned off step by step where the opposite effect is Fading In. You can also fade an animation sequence. To choose between image and animation fading a *Copy* button is displayed. If *Copy* is enabled then a single image is faded out/in. The image entered as first frame will be automatically copied to all other frames and the brightness will be changed.
If *Copy* is disabled then the brightness of each selected frame will be changed without modifying the image data.
Animations\FX \FadeOut.flc

Fade Over
This effect fades over from one image to another. A *24bit with Dithering* option appears. This mode yields better results, but causes the images to be dithered. This can lead to a bad compression ratio when saving this animation.
Animations\FX \FadeOver.flc

Color Cycle
Cycles the colors of the currently selected gradient once over the selected range of Frames. As well as with the FadeOut/In effect you can use this effect on an animation sequence or on a single image.
Animations\FX \Cycle.flc

Mosaic Out/In
Mosaic Out means that an image's resolution is made lower. That means more and more neighbored pixels are combined to a larger pixel. The destination pixel (mosaic) size can be set in the *Size* edit field. As well as with the FadeOut/In effect you can use this effect on an animation sequence or on a single image.
Animations\FX \MosaicOut.flc

Dither
Fades over from the first image to the last one by showing more and more pixels from the last image.
Animations\FX \Dither.flc

Zoom
Lets the last frame zoom from the first frame's center.
Animations\FX \Zoom.flc

Mosaic Transition

This following example will show you how to use the mosaic effect to create a transition from one image to another one.

- Create a new animation with a size of 320x256 containing one frame
- Load the image „Images\Fantasy.gif"
- Make the animation to contain 15 frames (menu *Animation->Number of Frames*)
- Enter the effects requester using menu *Animation->Effects*
- Select the effect „Mosaic Out/In"
- Set the first frame to 1 and the last frame to 15
- Set the *Size* value to 30
- Enable the *Copy* option so that always the first (original) image is used to calculate the effect
- Hit OK

Now the image will become a mosaic image step by step using 15 frames. To display the second image we will apply the reverse effect to it.

- Got to the last frame (15) and add a frame to the animation using the „+" button on the animation control panel
- Enable the „Import Images as Frames" mode in the preferences section „Miscellaneous". This is needed to append another image file to the animation.
- Load the image „Images\Machined.gif" to the new frame
- Make the animation to contain 30 frames (menu *Animation->Number of Frames*)
- Be sure that the last frame (frame 30) contains the image you just loaded (should be copied automatically)
- Enter the effects requester using menu *Animation->Effects*
- Select the effect „Mosaic Out/In"
- Set the first frame to 30 and the last frame to 16 (this will apply the reverse mosaic effect to the second image using the second half of the animation)
- Set the *Size* value to 30
- Enable the *Copy* option so that always the first (original) image is used to calculate the effect
- Hit OK

The result should look like „Animations/Effect1.flc".

Important Note:
When using effects that calculate a transition from one frame to another without notice of the images in between then you can apply this effect as often as you want. That means you can for example change the bar height when using *Shifting Bars* and you can use the effect again until you are satisfied with the result.
On the other hand, effects like fading or mosaic without the *Copy* option enabled can only be used once, because they use the images between the first and the last selected frame as they are.

Light Table Effects

Also the light table can be used to create certain effects. For example you have done a character animation and you want to add a background image or even a background animation to it. With the different light table layers you can put different graphics on top of each other. The following brief descriptions assume that you are familiar with using the light table.

Adding an Animation Background

In the chapter *Animation Basics* we have created an animation where a planet rotates around a sun. Now we will add a background to this animation that contains some stars.

- Load the animation „Animations\PlanetSun.flc"
- Copy the current frame to the spare frame (Ctrl+J)
- Now load the image „Images\Stars.pcx" to the current frame (be sure that the „Import Images as Frames" mode is set preferences section „Miscellaneous")
- Swap the current frame with the spare frame (J)

Now we have the star image in the spare frame and we can use the light table to display it together with our planet animation.

- Enter the light table requester (menu *Animation->Light Table->Settings*)
- Be sure that none of the layers display any image data (go through the layers using the scrollbar and switch off all *Show*-options
- Go to layer 1 and select the *Spare Frame* of *Project* 1 to be shown
- Set the layer *Brightness* to 0 and disable the *Use Color* option (if needed)
- *The Transparent Color* must be set to 0
- Leave the requester with OK

The stars are displayed behind the animation. To combine the light table layers with the animation we need to melt these frames with the light table.

- Use the function *Animation->Light Table->Melt Frames*
- Select 1 as the first frame and 36 as last frame
- Hit OK to finally combine the layers with the animation sequence

The light table is automatically switched off and the stars image is still visible. Play the animation to see that this happened to all frames. The result should look like „Animations\PlanetSunStars.flc".

Combining two Animations

Instead of adding a simple background you may also combine two animations, for example a background and a foreground animation. We will use the planet animation again and we will make the stars in the background glitter a bit.

- Load the animation „Animations\PlanetSun.flc"
- Go to project 2 and load the animation „Animations\Stars.pcx"

Now we have the planet animation as project 1 and the starts in project 2.

- Go to project 1 again
- Enter the light table requester (menu *Animation->Light Table->Settings*)
- Be sure that none of the layers display any image data (go through the layers using the scrollbar and switch off all *Show-* options
- Go to layer 1 and select the *Frame* of *Project* 2 to be shown
- Set the layer *Brightness* to 0 and disable the *Use Color* option (if needed)
- *The Transparent Color* must be set to 0
- Leave the requester with OK

The star animation is now displayed behind the planet animation. Use the frame scrollbar to move through the animation and you will see that both animations will be played back. The star animation contains only 12 images, but when the last frame is displayed it automatically starts with its first frame again. To combine the light table layers with the animation we need to melt these frames with the light table.

- Use the function *Animation->Light Table->Melt Frames*
- Select 1 as the first frame and 36 as last frame
- Hit OK to finally combine the layers with the animation sequence

The light table is automatically switched off and the stars image is still visible. Play the animation to see that this happened to all frames. The result should look like „Animations\PlanetSunStarsAnim.flc".

Motion Trail

The light table layers can have a different brightness. If you have an animation you can add a kind of motion trail to it using this feature. Just make the layers look like this:
- The first layer displays the current frame-1 and has a brightness of -20%
- The second layer displays the current frame-2 and has a brightness of -40%
- The third layer displays the current frame-3 and has a brightness of -60%
and so forth. It should be enough to use 3 or 4 layers.

An example for such a motion trail can be found at „Animations\MotionTrail.flc".
This animation was created by simply using the AnimPainting to make the points move and then the motion trail was added as described before.

How to ...

This section describes a few common problems not mentioned anywhere else in this handbook.

Create animated GIF89a files

A free GIF89a export plugin is delivered with the registered version.
It can be found in the menu "plugins" submenu "export". This program can be used to save an animated GIF89a file that can be added directly to an html-file.
You can also save the animation as single images (see menu "animation") and use other software to create an animated GIF89a-file.

Do animated Cursors

The size of animated cursors is restricted to be 32x32 pixels!
- create a new animation with a size of 32x32 and 1 frame (menu *File->New Screen/Animation*)

Now you need to decide how much colors your cursor is to use, either 16 or 256 colors. To select the number of colors used for saving an animated cursor use the
corresponding entry in the preferences (menu File->Preferences) section AniCursors/Icons. If it will be a 16 color cursor then load the palette "Palettes\icon16.pal".
Its a palette that contains the 16 predefined Windows colors only. Although the colors are repeated in the palette use the colors 16-31 for drawing! Do not change the
values of these colors!
If the cursor is to contain 256 colors, you may use any color palette.
An animated cursor always has a transparent color. When drawing a 16 color cursor use any color outside the range 16-31 as your background color. If you create a
256 color cursor use any color as background. When saving a cursor the background color is selected as transparent. If you load a 16 color cursor the color entry 32
is automatically used as background color.
Cursors can also have a hotspot. This is the sensitive mouse point. You can change the hotspot coordinates for a cursor in the preferences (menu File->PreferencesPreferences_Requester)
section AniCursors/Icons.
For saving animated cursors use the corresponding file type from the save animation requester.

Work with Icons and Cursors

The size of animated cursors is restricted to have a maximum size of 256x256 pixels!
You need to decide how much colors your icon is to use, either 16 or 256 colors. To select the number of colors used for saving an icon use the corresponding entry
in the preferences (menu *File->Preferences*) section AniCursors/Icons. If it will be a 16 color icon then load the palette "Palettes\icon16.pal". It's a palette that
contains the 16 predefined Windows colors only. Although the colors are repeated in the palette use the colors 16-31 for drawing! Do not change the values of these
colors!
If the icon is to contain 256 colors, you may use any color palette.
An icon always has a transparent color. When drawing a 16 color icon use any color outside the range 16-31 as your background color. If you create a 256 color icon
use any color as background. When saving an icon the background color is selected as transparent. If you load a 16 color icon the color entry 32 is automatically used
as background color.
For saving icons use the corresponding file type from the save animation requester.

Use a global Color Palette

A global color palette can be used when selecting the option *Equal Palettes* from the *Options* menu. If this is enabled all changes within a local palette are automatically copied to all other palettes.
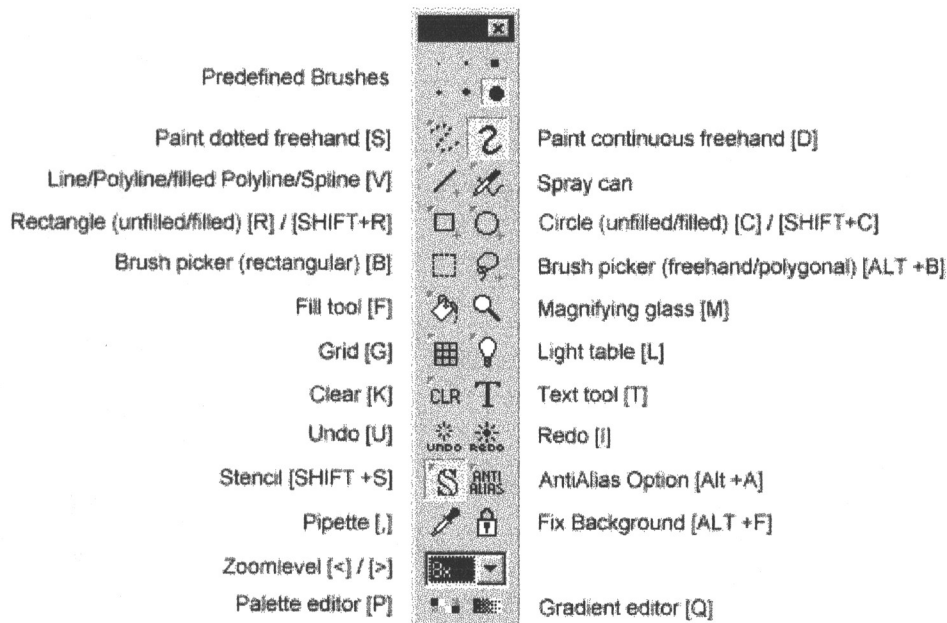
Apply AntiAliasing to a solid Color Area

The AntiAliasing function uses two different methods which can be changed as described in the *Reference* part for the toolbox. The method „2" can be used together with the fill tool. Simply activate the AntiAliasing and fill a color area with it's own color. Now the edges are anti-aliased.

Reference

This reference gives you a short overview about all tools and menu functions available in Pro Motion.
It gives a detailed description on how they are to be used.

Tools

By default the toolbox is displayed vertically on the right hand side of the workspace. You may place it at any other position.
To flip between vertical and horizontal orientation use [ALT+T]

Predefined Brushes	
Paint dotted freehand [S]	Paint continuous freehand [D]
Line/Polyline/filled Polyline/Spline [V]	Spray can
Rectangle (unfilled/filled) [R] / [SHIFT+R]	Circle (unfilled/filled) [C] / [SHIFT+C]
Brush picker (rectangular) [B]	Brush picker (freehand/polygonal) [ALT +B]
Fill tool [F]	Magnifying glass [M]
Grid [G]	Light table [L]
Clear [K]	Text tool [T]
Undo [U]	Redo [I]
Stencil [SHIFT +S]	AntiAlias Option [Alt +A]
Pipette [,]	Fix Background [ALT +F]
Zoomlevel [<] / [>]	
Palette editor [P]	Gradient editor [Q]

Remarks

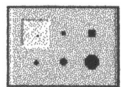Each icon symbolizes a special tool. A tool is activated by leftclicking on its icon or by using the shortcut [...].
Symbols that have a little *triangle* on their top left corner can be customized. That means if you rightclick on them, a dialog box is displayed where settings for this tool can be changed.
If an icon has a *plus* on its lower right corner then this button represents a group of tools. To select another tool from such a group just double-click on this icon and a little tool palette opens. Then choose a different tool from this palette.
All paint tools like line, circle, fill, spray... work the same way. If you use the left mouse button the current foreground color and/or the currently selected paint mode is used (see descriptions for menu „Mode"). If you use the right mouse button then you draw with the background color.
Also, when using paint tools you can lock the mouse movement to either horizontal or vertical direction. This can be done by holding the **SHIFT**-key. Then the first movement defines the movement that is not to be locked.
For tools which create objects like line, rectangle, circle etc. the object sizes are displayed in the information panel see descriptions for the *Workspace* at chapter *Getting started*.

Predefined Brushes

There are six predefined brushes that can be chosen by leftclicking on one of these brush shapes.
The first row contains three rectangular brushes of different size and the second row contains three circular brushes. If you rightclick on a brush you will be set to the resize mode. The cursor changes and you can resize the brush by moving your mouse and keeping the left button down. In this resize mode you can use the **ALT** key to switch between normal and proportional resizing.
Use [+] / [-] to increase or decrease the size of the current brush while drawing.
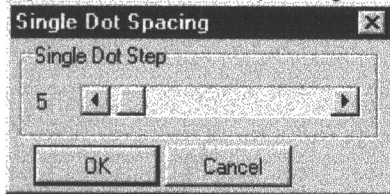
Paint dotted

Shortcut: S

This tool stamps the current brush on the canvas. That means it creates a row of single brush dots without connecting them to a line. The faster you move you mouse while drawing the more space will be between these dots.
If you hold the **ALT** key while drawing with this tool the AnimPainting is started. That means that you automatically advance through the frames. Hold the **ALT+CTRL** keys to stamp an AnimBrush down over multiple frames.

Rightclick on this icon to set up the single dot spacing:

The *Single Dot Step* defines the minimum space between two single brush dots while drawing.

Single Dot Spacing Requester

Paint continuous

Shortcut: D

This tool works the same way as *paint dotted* but the brush dots are connected by lines.

Line / Polyline / filled Polyline / Spline

Shortcut: V

This tool button represents a group of line tools. To select a certain tool double-click on this button and a palette will be displayed with different line modes.

Line

Draws a straight line using current brush:
- click on the canvas to set the starting point for the line
- hold the mouse button and move the mouse to create a straight line
- release the mouse button

Rightclick on the line icon to enter the dot spacing requester for lines. These settings apply to all paint tools using lines such as circle, rectangle, line, polyline and spline!

- *Continuous* is the default setting and does not create any space between single dots, but connects them by a line
- *Every Nth Pixel* draws a brush dot after leaving a space of N pixels
- *N total Dots* draws a line that consists exactly of N brush dots
- *N* defines the value needed for the last two modes

Dot Spacing Requester

Polyline

Draws a polyline that consists of straight lines:
- click on the canvas to set the starting point
- hold the mouse button and move the mouse to create a straight line
- release the mouse button
- move the mouse to create a new line
- click on the mouse button you started drawing with to set the new line or use the other mouse button to finish drawing

Rightclick on the line icon to enter the settings requester for *dot spacing* (see line tool).

Filled Polyline

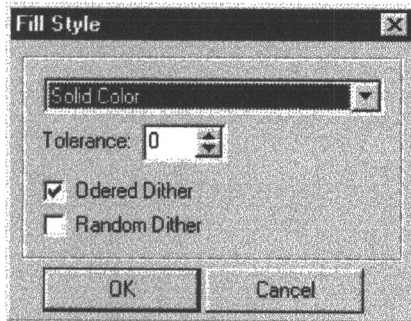Draws a filled polygon that can consist of straight lines or freehand drawn parts:
- click on the canvas to start drawing
- draw a polyline as described at the polyline tool
- while holding the mouse button down you can draw a shape freehand
- close the polygon by either setting the end of the last line to the start of the first line or by clicking on the opposite mouse button you started drawing with
- now set the orientation line for the filling mode (gradient filling) by moving your mouse and clicking the left mouse button

Rightclick on this icon to enter the fill style requester. These settings apply to the fill tool (paint bucket) tool!
Shortcut: SHIFT+F
This requester enables you to select a special type of filling an area.
It is used by the *filled polygon* and the *fill tool*.

Fill style requester

Fill type meanings:
- *Solid color* is used to fill the foreground or background color, depending which mouse button you used with the drawing tool
- *Current Paint Mode* fills with the current paint mode
- *Outline* surrounds the filling area with a pixel line
- *Circular Gradient* creates a circular color shade centered to the specified point
- *Horizontal Gradient* creates a horizontal color shade starting at the specified pixel column and spreading to left and right
- *Vertical Gradient* creates a vertical color shade starting at the specified pixel line and spreading to top and bottom
- *Linear Gradient* creates a color shade of the given orientation
- *Horizontal Line Contour Gradient* creates a horizontal color shade that is always fitted to the width of the current pixel line
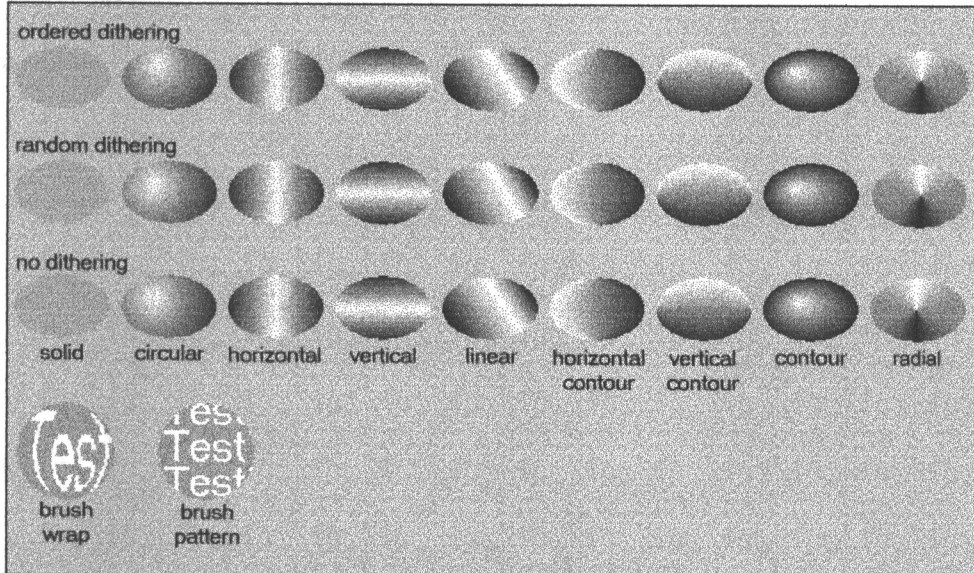- *Vertical Line Contour Gradient* creates a vertical color shade that is always fitted to the height of the current pixel column
- *Contour Gradient* creates a color shade that is fitted to the whole shape that is to be filled.
- *Radial Gradient* creates a radial color shade
- *Brush Pattern* uses the current brush shape as a tiled pattern
- *Brush Wrap* matches the current brush to the shape of the area that is to be filled

To increase the filling area you can add set a *tolerance* value. If this value is „0" only the selected color will be used. The large the value is set the more neighbor colors will be filled too.

There are two different dither schemes:
- *Ordered dithering* increases the virtual color depth by applying an ordered dither pattern.
- *Random dithering* increases the virtual color depth by mixing neighboring pixels randomly.

Note: if Antialiasing is switched on, it is applied to the filled area, too.

Different filling methods for use with the fill tool or the filled polygon
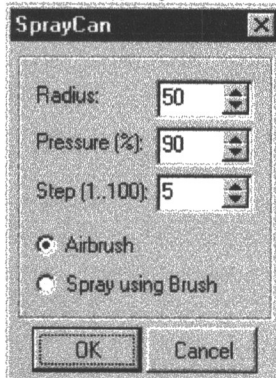
Spline

Draws a three point spline curve:
- click on the canvas to set the starting point for the line
- hold the mouse button and move the mouse to create a straight line
- release the mouse button to set a straight line
- move the mouse to define a curve
- use the mouse button to finally draw the curve

Rightclick on the line icon to enter the settings requester for *dot spacing* (see line tool).

Spray Can

The spray can is used to simulate an airbrush. There are two different spray types that can be used.
To select a type rightclick on this tool and a settings requester appears:

SprayCan ☒
Radius: 50
Pressure (%): 90
Step (1..100): 5
⦿ Airbrush
○ Spray using Brush
OK   Cancel

Settings for the spray can

- *Radius* defines the size of the spray cone
- *Pressure* determines how much color is sprayed or how many brush dots are set
- *Step* is the distance that is used between the spray dots

The different spray types are:
- *Airbrush* which simulates spraying with a single color
- Spray using brush *simply draws brush dots randomly within the given radius*

Using the airbrush simulation is very slow. Because of the 256 color restriction for each pixel that is calculated the best matching color within the color table must be found. Thus the results are often quite poor.

Rectangle (unfilled / filled)

Shortcut: R , SHIFT+R
To choose between the filled and unfilled double-click on the tool icon and select the corresponding tool from the palette that is displayed. Unfilled mode paints a rectangle using the current brush. The filled mode can be used to draw a solid or brush filled rectangle.
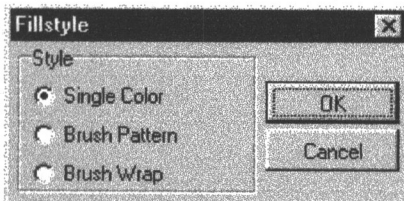
Draw a rectangle:
- click on the canvas to set the starting point
- hold the mouse button and move the mouse to create a rectangle
- release the mouse button
The **ALT**-key can be used to switch between square and rectangle while drawing.

If you use the unfilled rectangle rightclick on this icon to change the *dot spacing* for lines. See the line tool for more information.
The fill style requester for the filled rectangles is accessed by rightclicking on the filled rectangle icon.
This fill style is also used by the filled cycle tool.

Fillstyle ☒
Style
⦿ Single Color   OK
○ Brush Pattern
○ Brush Wrap   Cancel

Fill style for circles and rectangles

- *Single Color* fills with the foreground color using the current paint mode or with the background color
- *Brush Pattern* fills the shape with the current brush as a tiled pattern
- *Brush Wrap* fits the current brush to the shape

Circle (unfilled / filled)

Shortcut: C , SHIFT+C

To choose between the filled and unfilled double-click on the tool icon and select the corresponding tool from the palette that is displayed. Unfilled mode paints a circle using the current brush. The filled mode can be used to draw a solid or brush filled circle.

A circle can be drawn in two ways. You can create a circle by defining the bounding rectangle or by setting the center and defining the radius. This option can be changed in the *preferences* section "miscellaneous" (see descriptions for menu "File").
Draw a circle:
- click on the canvas to set the starting point (the center of the circle or the corner of the bounding rectangle)
- hold the mouse button and move the mouse to create the circle
- release the mouse button

The **ALT**-key can be used to switch between a true circle and an ellipse while drawing.

   If you use the unfilled circle rightclick on this icon to change the *dot spacing* for lines. See the line tool for more information. The fill style requester for the filled circle is accessed by rightclicking on the filled circle icon. See filled rectangle for more informations.

Brush Picker (rectangular)

Shortcut: B

Use this tool to create a custom brush:
- click on the canvas to set the starting point
- hold the mouse button and move the mouse to create a rectangular selection
- release the mouse button
- Now a brush is created from the selected image part.

The current background color is automatically taken as the brush's transparent color. If you use the right mouse button to pick up a brush it is removed from the image by filling the selection with the background color.

With this tool you can also pick up animated brushes (brushes which are animations itself).
To do this just hold the **ALT** key while picking up the brush.
Then a series of frames starting with the current one are picked up into the animated brush. To set up the number of frames to be picked up use the settings for animated brushes. See descriptions for menu "Brush" submenu „AnimBrush" entry „Settings".

Brush Picker (freehand/polygonal)

Shortcut: ALT+B

Use this tool to create a custom brush with a freehand or polygonal selection. A polygonal selection may contain freehand defined parts.

Freehand:
- click on the canvas to set the starting point of the selection
- hold the mouse button and move the mouse to create freehand area that defines the image part you want to pick up as a brush
- release the mouse button
- the selection is closed automatically

Polygonal:
- click on the canvas to set the starting point of the selection
- hold the mouse button and move the mouse to create freehand area that defines the image part you want to pick up as a brush
- release the mouse button and move the mouse to create a line to be part of the selection
- hit the mouse button and go to step two or hit the opposite mouse button you started with to finish the selection
- the selection is closed automatically

Now a brush is created from the selected image part. The current background color is automatically taken as the brush's transparent color. If you use the right mouse button to pick up a brush it is removed from the image by filling the selection with the background color.

Fill Tool (Paint Bucket)

Shortcut: F

Use this tool to fill an area of a certain color with either another color, a color gradient or a pattern:
- click into the area you want to fill
- hold the mouse button and move your mouse to define the starting point or the orientation for a gradient filling method (not used for solid color or pattern filling)
- release the mouse button

To select a fill style just rightclick on the tool icon and the *fill style requester* appears. See *filled polygon tool* for more informations.
If you hold the **ALT**-key while filling the following animation frames will be filled too!

Magnifier

Shortcut: M , „<" for zooming in, „>" for zooming out
The magnifying glass lets you zoom into the current image. There are two different zoom modes:
- a simple click on the canvas with the left mouse button increases the zoom level one step where the right mouse button decreases
- to zoom into a certain area left click on the canvas and move your mouse to define a region that is to be zoomed

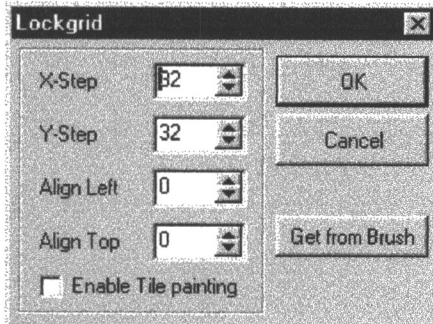Zooming is only possible within the magnify window!
As a special option you can use different window positions when using the magnifying glass. This option can be set in the *preferences* section "miscellaneous" (see descriptions for menu "File").

Grid

Shortcut: G
The grid can be used to let the brush or mouse position snap to cross points of a defined grid or to create tile graphics.
Rightclick on this icon to get into the grid setup:

- *X-Step* and *Y-Step* define the horizontal and vertical spaces between the grid points
- *Align Left* and *Align Top* set the position for one grid point to define the position of the grid
- *Get from Brush* uses the current brush's width and height for X-Step and Y-Step and the last position the brush was stamped down for Align Left and Align Top
- *Enable Tile-painting* starts the tile mode (see below)

Lock grid requester

The grid can be used for all drawing tools except airbrush.
You can also use it together with the brush picker. There is an option that can be used to pick rectangular brushes correctly.
For example:
- you have a grid 16*16 aligned to 0x0
- that means the brush picker always snaps to a multiple of 16 for both coordinates x and y
- if you want to pick up a brush from f.e. 16x16 to 31x31 this is not possible, because the crosshairs of the brush picker snap to 32x32

To resolve this there is an option that automatically removes the rightmost and lowest pixel lines when picking up a brush this way. This option can be set in the *preferences* section "miscellaneous" (see descriptions for menu "File").

The tile painting can be used to draw endless tile graphics. A tile has the size that is specified in the input fields for *X-Step* and *Y-Step*. Before you start drawing with this mode you need to clear the image! Otherwise the image data will be destroyed and you will get strange effects.
The tile painting can only be used with the following tools:
- dotted/continuous drawing
- (filled) rectangle
- (filled) circle
- lines

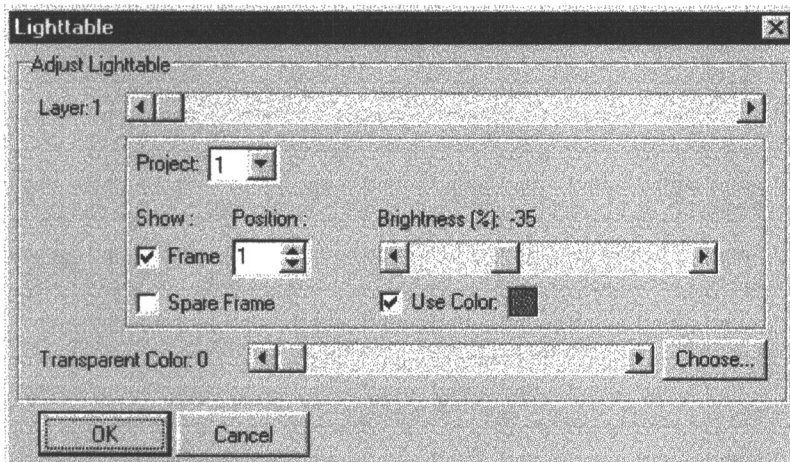All other paint tools ignore this mode, so do not use them!

Light Table

Shortcut: L
The light table is a very powerful tool that enables you to display several (key)frames of an animation upon another to draw animation steps in between. You may even use different projects to be used in the light table layers. This method is also known as onion skinning. Each layer of the light table may get a unique brightness value so that you can differ between the key frames.
For a more detailed description on how to use the light table please have a look at the *Painting Tutorial "Animation"*.

Rightclick on this icon to set up the light table (shortcut: SHIFT+L):

Requester for the light table setup

Layer are the different layers on the light table. Where "1" is the upper image and "12" is the lowest one. For each of these levels you may select a certain *Project* where an image is to be taken from. With *Show* you can select which frame is to be shown. You may choose the *Spare Frame* (See description for menu "Frame") of this project or a regular *Frame*.
Up to twelve layers can be used
Position specifies the position relative to the current frame-number. A value of "-1" shows the previous frame and "2" the next but one.
Brightness adjusts the brightness an image layer is displayed with where 0 is normal brightness.
The current frame of the animation is always displayed on top with normal brightness.
Use Color displays a layer using a single color that can be chosen.
The light table can remain active when you start playing an animation. See *preferences* section "miscellaneous" for the corresponding option (descriptions for menu "File")
Please notice that if you select brightness<>0 the playing speed will be quite slow.
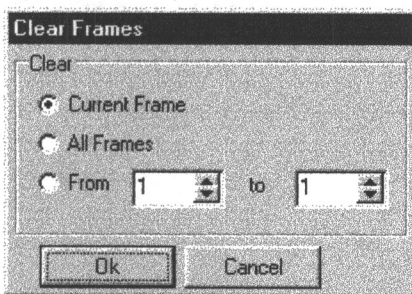It is recommended to select automatic brightness control in the *preferences*.
The *Transparent Color* is used to define a color for all layers where the next underlying image is to be displayed.
The playback speed also slows down if the images shown by the light table have different color tables!

Clear
Shortcut: K
Simply clears the current image, a sequence of frames or the whole animation by filling them with the current background color.
To set up this tool rightclick on this icon and the requester appears:

Requester for the clear tool

- *Current Frame* only erases the active frame
- *All Frames* erases the complete animation
- *From ... to ...* clears the specified range of frames

Text Tool

Shortcut: T

Creates a text brush out of a true type font installed on your computer:

Requester for creating a text brush

Select a font that is to be used for the text brush. You can alter the size, style (bold, italic, underlined) and the alignment (left, center, right).
You may enter a multi line text.
The window can be resized!
The brush uses the current foreground color as text color and the background color as transparent. A text brush can get any color from the color palette.

Undo / Redo

Shortcut: U / I

Up to the last 64 drawing operations can be made undone. That means you can f.e. draw three lines and by pressing „U" you can remove these lines step by step and with „I" you can redraw them again.
Undo-s to palette operations are not supported!
With CTRL+U and CTRL+I you can go all steps backward and forward.
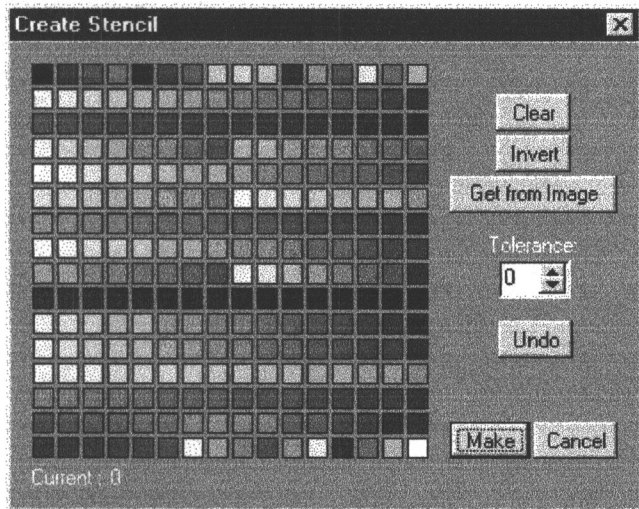
⑤ Stencil

Shortcut: SHIFT+S

The stencil is a mask that is defined through the color table. That means you can mark colors that are left untouched when drawing over them.
Rightclick on this tool to set up this mask:

- *Colors* that are masked are surrounded by a white box
- to select/deselect a color left-/rightclick on the corresponding box
- *Clear* deselects all colors
- *Invert* inverts all selections
- *Undo* makes all changes undone
- use *Get Colors from Image* to select colors directly from the image. Just click on pixels on the canvas. The dialog stays opened.
- A *Tolerance* value can be used to select a group of colors which are near to the actual selected color
- *Make* creates the mask
- *Current* shows the color index under the mouse cursor

Stencil creator

The stencil can be used together with any drawing function except the fill tool.
When you capture a brush with the brush picker tools the masked colors are not taken into the brush. They are replaced by the transparent color. So you can create a brush using a color mask.
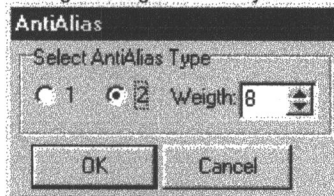
▨ AntiAlias Option

Shortcut: ALT+A

Use this option to remove aliasing effects. Such effects occur, if you f.e. draw a line on the canvas:

The upper line is drawn without and the lower line with the antialiasing option set on.

With rightclicking on this tool you can change between different antialiasing algorithms:

Type „1" has good results when drawing lines, circles or freehand but it can only be used with brushes larger than one pixel!
Type „2" yields better results for text brushes. It can be slightly scaled with the weight value. The larger this value the less the antialiasing will be.

AntiAlias types

Pipette

Shortcut: „,"

Use the pipette to get a certain color from an image as foreground (left mouse button) or background color (right mouse button).

For a temporary pipette use the **CTRL** key. The pipette will then appear as long as you hold this key down. This is very useful for quick color changes.

If you hold the **ALT** key when using the pipette tool you can replace the color under the cursor by the current foreground/background color throughout the entire image by left/rightclicking on a pixel.

Fix Background

Shortcut: ALT+F

This function simply takes the current image and uses it as background. If you now draw something on this image with the foreground color it can be removed again by using the background color. Instead of drawing with the background color the image is restored.

This tool can not be used together with the light table.

Zoom Level

Shortcut: „<" „>"

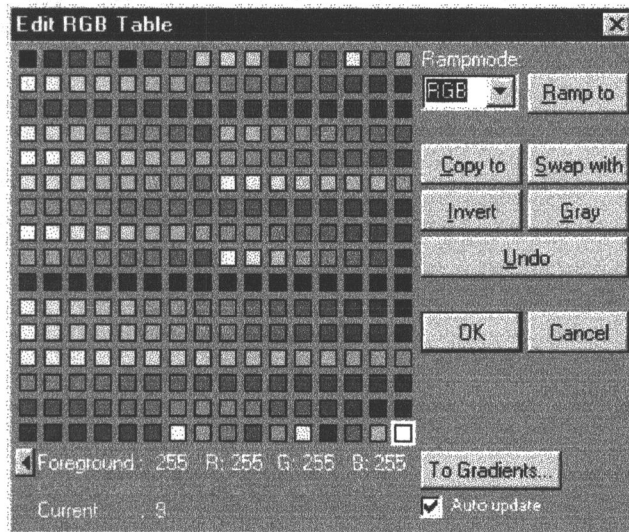Use it to change the zoom level to a special value or „<" and „>" to decrease and increase it.

Only the magnify window is used for zooming.

Palette Editor

Shortcut: P

This will bring you to the common palette editor, where the palette of the current image can be changed:

Foreground and background color are defined by left/rightclicking on the color boxes.

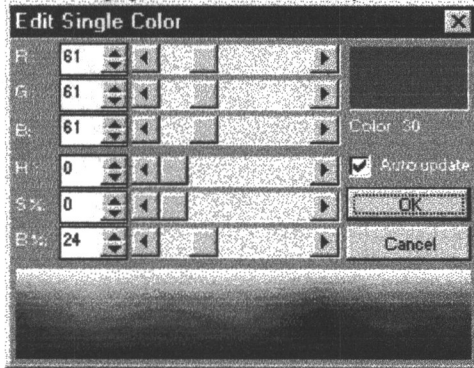Their values (palette index and RGB) are shown below the color table.

To change the color of a certain palette entry just double-click and a color requester appears (see below).

You may also use the little button on the left side of the „foreground" label to open an online color requester that allows immediate color definition. Click on the button again to close it.

Palette editor

- *Ramp to* allows you to create a smooth color ramp from one color to another one. To do this leftclick on a color where you want to start ramping. Hit the Ramp to button. The mouse cursor becomes a crosshairs. Now leftclick on a second color to calculate a ramp to.
- *Ramp Mode* is used to define the color space where the ramping is to be calculated. You may select from HSV or RGB which yield different results
- *Copy to* allows you to copy a color value from one palette index to another. To do this leftclick on a color where you want to copy the values from. Hit the *Copy to* button. The mouse cursor becomes a crosshairs. Now leftclick on the color you want to copy the values to.
- *Swap with* swaps the color values of two palette entries. Works like Copy to, but swaps the colors.
- *Invert* inverts the color values of the current foreground color.
- Gray makes the color values of the current foreground color to a gray value.
- *Undo* makes the last change undone.
- *To Gradients* takes you to the gradient editor (see descriptions for the Gradient Editor).

Auto update immediately makes color changes visible in the current image.

When changing color values the color requester is always used:

The color requester

Use the RGB sliders to change the Red, Green and Blue values of the color.
The HSV sliders change the values for the HSV color model where H=Hue (0..360°), S=Saturation (in %) and V=Value or Brightness (in %)
You can click on the color bar to choose a color directly.

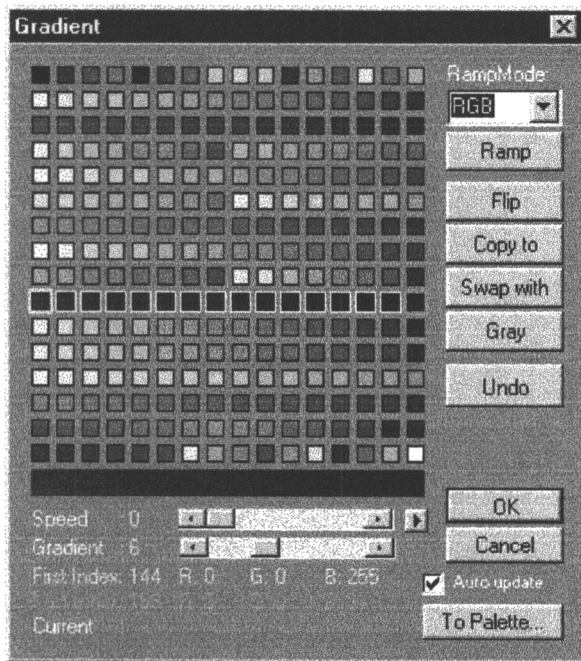- *Auto update* immediately updates color changes to the image

Gradient Editor

Shortcut: Q
With this editor you can define and change color ranges within the palette.
A color range (gradient) is a group of color palette entries selected by a start and an end color.
You can have up to sixteen different gradients.

Gradient Editor

The first color of a gradient is surrounded by a yellow box and the last color by a green box.
To select a new start or end color hold the **SHIFT** key and leftclick on a color to select it as the first color or rightclick to select it as the last color. All colors belonging to the gradient are surrounded by a white box. Below the color table you can see the gradient look. Also color data is displayed for the first and last color (index and RGB-values).

- *Ramp* allows you to create a smooth color ramp from the first color to the last color.
- *Ramp Mode* is used to define the color space where the ramping is to be calculated. You may select from HSV or RGB which yield different results.
- *Flip* swaps the first and the last color index and lets you change the gradients direction.
- *Copy to* allows you to copy a gradient to another position.. Hit the *Copy to* button. The mouse cursor becomes a crosshairs. Now leftclick on the color you want to copy the gradient to.
- *Swap with* works like *Copy to*, but swaps the colors instead of copying.
- *Gray* makes the selected gradient to be gray
- *Undo* makes the last operation undone.
- *Auto update* immediately updates color changes to the image

- *To Palette* takes you to the Palette Editor
- The slider besides the label *Gradient* allows you to change between the different gradients

You can also set keys within a gradient selection which are recognized when ramping a gradient. This is done by rightclicking on a color between the first and the last gradient color. Such a key color is marked with a red box.

It is possible to cycle a gradient. That means that the colors are shifted within the defined gradient range. For this purpose you have the *Speed* slider. Here you can give each gradient a unique speed value. This value is defined in steps per second and can go from 0 to 100. If you hold the little play button right besides the speed slider the cycling is activated. Now all gradients that have a speed different to zero are cycled. As default the cycling can only be seen in the animation window. To cycle the magnify window, too, you can set an option in the *preferences* section "miscellaneous" (see descriptions for menu "File"). The cycling can also be activated outside this editor while drawing. There is a play button near the gradient display on the information panel. See the description for the workspace in section *Getting started*.
Be sure not to overlap gradients that are cycled. Otherwise you will get wrong results!
For a little tutorial on how and where to use gradients and cycling please have a look at the *Painting Tutorial* „Working with Gradients".
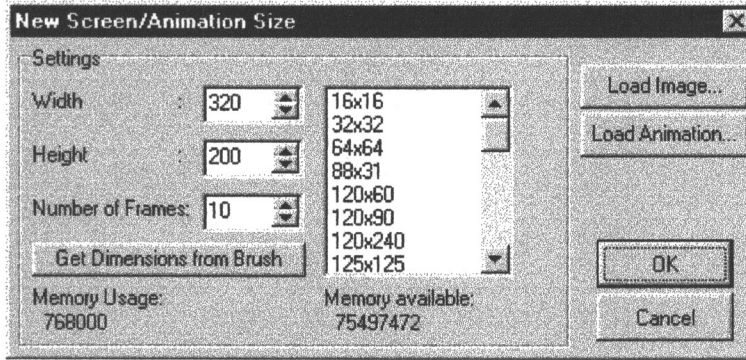
Menus

This section describes all menus of the main application window and their functions.
For shortcuts please have a look at the real menus. If a shortcut exists it is displayed on the right side of the menu item.

Menu File

The menu file is used to load or save images and animations. Also the preferences are a very important subject.

New

This menu entry allows you to create a new image or animation and opens a requester to setup sizes and the number of frames to be created:
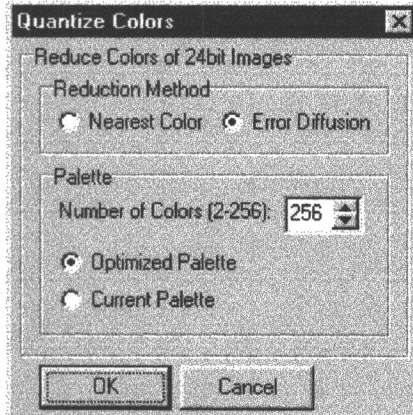

Requester to create a new image/animation

- define the *Width* and *Height* for the new image or animation and set the *Number of Frames* you need
- *Get Dimensions from Brush* uses the currents brush with/height and if it's an animated brush the number of frames it contains
- *Memory Usage* shows you the amount of memory the project will need
- *Memory available* shows the free memory that can be used
- With *Load Image / Load Animation* you can create an image/animation from a file

As a thumb rule you should only use three quarters of your physical memory.

Load Image

Opens the common dialog for loading files under Windows and enables you to select an image that is to be loaded.
If the import option is set in the *preferences* section "miscellaneous" (see descriptions below) then the image can be imported to the current one. That means the size of the current image/animation remains.

Normally only 256 color images are supported for reading. True color images are only supported for files of type BMP and JPG.
If such an image is loaded then a requester appears for automatic color reduction:

Requester for color quantization

You can choose between two reduction methods.
- *Nearest Color* reduces the image colors by finding the best matching colors within the color palette that is used
- *Error Diffusion* applies a Floyd/Steinberg dithering to the image. This increases the image quality.
- You can reduce the image to a certain *Number of Colors* between 2 and 256
- The palette the image is reduced to can be an *Optimized Palette* that is created from the 24bit image or the *Current Palette* that is used by the frame.

Save Image

Allows you to save the current image under the name you have saved it before without asking you for a filename -> fast save.

Save Image as

Opens the common dialog for saving files under Windows and enables you to enter a new filename for the current image and saves it with one of the supported file types.

Load Animation

Opens the common dialog for loading files under Windows and enables you to select an animation that is to be loaded. If a Windows AVI file is loaded the requester for color quantization appears as described for *Load Image*.

Save Animation

Allows you to save the current animation under the name you have saved it before without asking you for a filename -> fast save.

Save Animation as

Opens the common dialog for saving files under Windows and enables you to enter a new filename for the current animation and to save it with one of the supported file types.
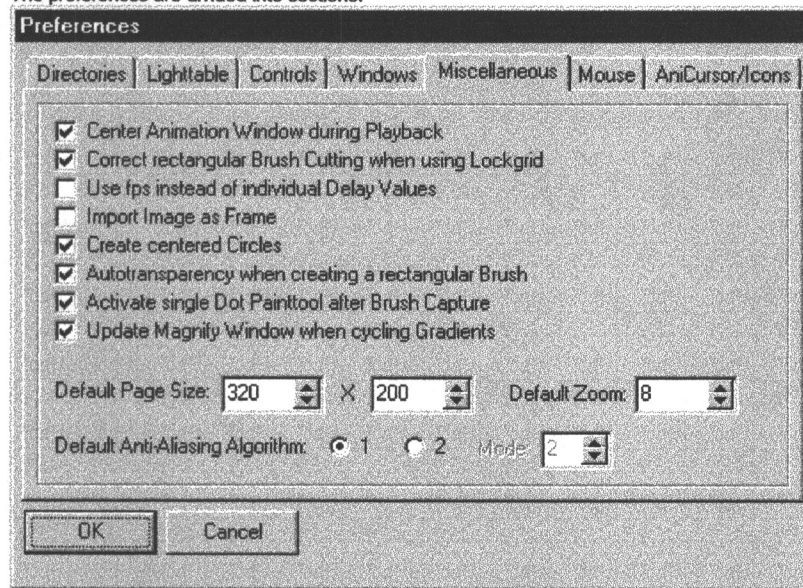
Page Setup

Shows the standard Windows dialog box for the printer page setup.
This is used together with the print function (below).

Print

Shows the standard Windows dialog box for printing a range of images.

Preferences

This function is very important. Here you can customize a lot of tools and functions of Pro Motion.
The preferences are divided into sections:

The preferences dialog box

The different sections and their options:

Directories

Undo directory is the directory where all undo-files are saved. Please make certain that there is always enough disk space available (5MB, better 20MB). Otherwise the undo function does not work properly.
Default Palette: You may select a different default palette here. Hit the little button besides to open a palette file.

Light Table

Set layer brightness of the light table... sets layer brightness of the light table images to "0" when an animation is played.
This will improve the playback performance when the light table is switched on.
Switch light table off when playing... switches light table off if an animation is played.

Controls

Spacebar hides... means if the spacebar can hide/show certain windows. With the checkboxes you can choose the windows that should be hidden/displayed when hitting the spacebar.
Keys for cycling... allows you to change the keys used to step with the foreground color through the palette.

Windows

Auto-resize after loading... automatically resizes the animation playback window after loading an image/animation.
Auto-move Windows... moves all windows of the application automatically when the main window is moved.
Display New Animation Dialog... shows the dialog box to create a new animation after Pro Motion is started.
Use different Window Positions when... uses a separately saved window configuration (position and sizes) if you use the zoom mode. See descriptions for menu *Options* submenu *Windows*.

Miscellaneous

Center Animation Window... centers the animation window on the screen when it is played. After playback the previous window position will be restored.

Correct rectangular... corrects the brush size after creation with the brush picker when the lockgrid is activated. The rightmost and lowest pixel row is removed. This is used to create a brush that has the dimensions of the lockgrid snap spaces. See descriptions for the *toolbox and the grid tool.*

Use fps instead... uses the measurement unit "frames per second" instead of milliseconds to describe delays between frames. If you use fps then all frames have the same delay according to the fps value you enter on the right side of the animation control panel.

Import Image as... keeps current animation sizes when an image is loaded and imports it as a frame.

Create centered Circles... creates circles from their center. That means you at first set the center of the circle and by moving the mouse you define the radius.

Autotransparency when... If you create a brush using the box selection (brush picker) and all four corner pixels have the same color then this color is automatically used as transparent.

Default Page Size... defines the image size that is used after the program is started.

Default Zoom... defines the zoom value that is used after the program is started.

Default Anti-Aliasing... lets you choose of two types of antialiasing algorithms. Algorithm 1 is better used for drawing lines circles or freehand. Algorithm 2 has better results when creating text.

Activate single Dot Paint Tool... activates the single dot paint tool after creating a custom brush with one of the brush pickers. If this option is not selected the last used paint tool will be switched after creating a brush.

Update Magnify Window when cycling... updates the magnify window, too, if you use the gradient cycling and you are running your Windows desktop with more than 256 colors. For more information see descriptions for the *Gradient Editor/Toolbox.*

Text brush is single colored... creates text brushes in single color mode that enables you to change the text color by just selecting a new foreground color.

Save BMP Files with least possible Color Depth... Saves BMP files with only necessary colors. That means if you use only the first 16 palette entries for your image then the image is saved as a 16 color image instead of a 256 color image.

Mouse

Mousespeed... lets you use a different mouse speed that is only used with this application. If you switch to another program the system default is restored.

AniCursor/Icons

Save Icons and Cursors... saves icons and animated cursors with 256 colors.

Hotspot Coordinates... define the coordinates within a cursor to be used as hotspot.

JPEG Export

Quality (0-100)... selects the compression ratio for JPEG saving. „0" is least compression, but highest image quality.

Progressive Encoding... decides if the JPEG image is to be saved with progressive mode.

EXIT

Quits the program.

Menu Brush

This menu includes several brush functions such as manipulation tools or load/save for normal and animated brushes. Brush manipulation functions can be made undone with the *Restore* command

Restore

This restores the last created custom brush

Resize

Sets you into the resize mode where you can stretch the current brush:
- click on the canvas to start stretching
- hold the mouse button and move the mouse to resize the brush
- release the mouse button

Use the **ALT** key to switch between normal and proportional stretching, where the brush keeps its aspect ratio.

Grip

Is the brush grip, which can have the following positions relative to the brush:
- *Top Left*, is the top left corner of the brush
- *Center*
- *Lower Right*
- *Custom Position* is a free defined position

With *Set Custom Position* allows you can set your own brush grip position:
- click on the canvas to start
- hold the mouse button and move the mouse to the position, where you want to have the brush grip
- release the mouse button

Rotate

Rotates the current brush:

- *90° CCW* rotates 90° counter clockwise
- *90° CW* rotates 90° clockwise
- 180° rotates 180°

With *Free* you can rotate the brush at any angle interactively:

- click on the canvas to start
- hold the mouse button and move the mouse. You can see a bounding rectangle that shows the rotation that will be applied
- release the mouse button

Bend

Allows you to bend the current brush.

- *Horizontal* bends in left or right direction
- *Vertical* bends up or down

How to use:

- select either *Horizontal* or *Vertical*
- click on the canvas to start
- hold the mouse button and move the mouse. You can see a bounding shape that shows how the brush will be bent
- release the mouse button

Shear

Allows you to shear the current brush.

- *Horizontal* shears in left or right direction
- *Vertical* shears up or down

How to use:
See *Bend*

Mirror

Allows you to mirror the current brush.

- *Horizontal* mirrors from left to right
- *Vertical* mirrors from top to bottom

Halve, Double

Halves or doubles the current brush size

- X halves or doubles the width
- Y halves or doubles the height
- XY modifies both width and height

Outline

Surrounds the brush with the current foreground color. The brush will now be a custom brush if it was a round, rectangular or text brush!

You can use this function together with color cycling (menu *Mode*) to outline brush step by step with the current gradient.

Outline Invert

Surrounds the brush with the current foreground color. The brush will now be a custom brush if it was a round, rectangular or text brush!. The brush „content" will be erased.

Shrink

The opposite function of "Outline". It reduces the brush by its outer pixel row.
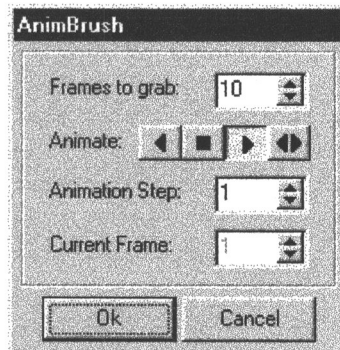
Make single Color

Makes the brush using the current foreground color only.

AnimBrush (submenu)

This submenu contains functions for animated brushes

Settings

Allows you to change the settings for animated brushes such as playback speed and direction or the number of frames to be taken into an animated brush:

Settings for animated brushes

- *Frames to grab* defines the number of frames that are to be taken up into the animated brush when it is created. For informations on how create an animated brush please have a look at the *Brush Picker* tool (descriptions for the toolbox)
- *Animate* shows the direction for the AnimBrush playback (backward, none, forward, pingpong)
- *Animation Step* describes the frames that have to be used while playback (1=each, 2=each second, 3=each third ...)
- With *Current Frame* you can jump to a certain frame of the current AnimBrush

Next Frame

switches to the next frame of the animated brush

Previous Frame

switches to the previous frame of the animated brush

First Frame

jumps to the first frame of the animated brush

Last Frame

jumps to the last frame of the animated brush
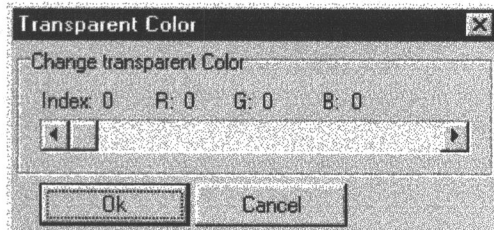
Load AnimBrush

Opens the common dialog for loading files under Windows and enables you to select an animation that is to be loaded as animated brush.

Save AnimBrush

Opens the common dialog for saving files under Windows and enables you to enter a new filename for the current animated brush and to save it using one of the supported file types.

Change transparent Color

Lets you define a new transparent color for the current brush:

Transparent color for the current brush

With the slider you can scroll through all 256 colors.
Index shows the current color number and *R,G,B* show the color values of this color.

Load Brush/Save Brush

Load or save a brush as a common image file.

Menu Mode

This menu is a list of the different drawing modes.

Commonly whenever you draw with the foreground color (drawing with left mouse button) the mode you have chosen here will be used.

This mode also affects drawing primitives like lines, rectangles, circles...

Some paint modes do color calculations. Because there are only 256 colors that can be used the quality of the result may be poor. The more colors of different kind your color table contains the better will be the results.

Paint

Paints with current brush as it is. That means the brush is simply stamped down.

Brighten
Brightens image colors. You can set the strength of brightening in the *Settings* (see below)

Darken
Darkens image colors. You can set the strength of this mode in the *Settings* (see below)

Tint
Tints image colors with brush colors. That means the brightness of each image pixel is taken and the color from the corresponding brush pixel. Both are mixed together and the result is a pixel with the brush pixel color and the image pixel brightness.

Shift Hue
Takes the Hue (color model HSV) of the image pixels and rotates it (0..360°). You can set the strength of this mode in the *Settings* (see below)

Inc/Dec Saturation
Increments/decrements the Saturation(color model HSV) of the image pixel colors. You can set the strength and type of this mode in the *Settings* (see below)

Invert
Simply inverts the image colors using the RGB-color model. A Red value of f.e. 40 will then be 215 (=255-40).

Difference
Uses difference values between image and brush colors for painting (RGB color model).

Translucent
Mixes image and brush colors. You can define a proportional weighting for this mode. That means the result color is calculated by x% of the image color and y% of the brush color and x+y=100%. See the paint mode *Settings* below.

Dither
Paints using a dither pattern. The ordered dither pattern is calculated upon a value between 0 and 255. This value can be set in the paint mode *Settings* below.

Colorcycle
Uses the colors of the current gradient one after another. If the last gradient color is passed the first one is used again...

Gray
Reduces the image colors to gray levels.

Rub Through
When drawing with this mode the image that resides in the "Spare Frame" (see descriptions for menu *Frame*) becomes visible. You „rub through" to the spare frame.

Shade
Shifts the image colors which are part of the current gradient. So for each color the next color within the gradient will be used.

Paint single Color
Draws using current foreground color regardless if the brush has more than one color.

Replace
Draws with the current brush but without transparency.

Smear
Smears the colors in the drawing direction. Only use with continuous painting or continuous line modes.

Blend
Smears the colors in the drawing direction and applies smoothing. Only use with continuous painting or continuous line modes.

Filter (submenu)

HIGHPASS
Increases brightness contrasts.

Soften
Softens color contrasts and blurs the image.

Soften more
Stronger soften mode.

Light Edges SE
Emphasizes edges that are nearly parallel to south, east or south east direction.

Light Edges NW
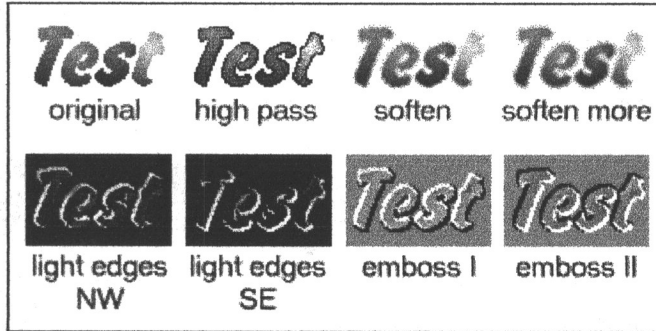Emphasizes edges that are nearly parallel to west, north or north west direction

Emboss I
Puts dark colored areas into the „background". So the objects look embossed.

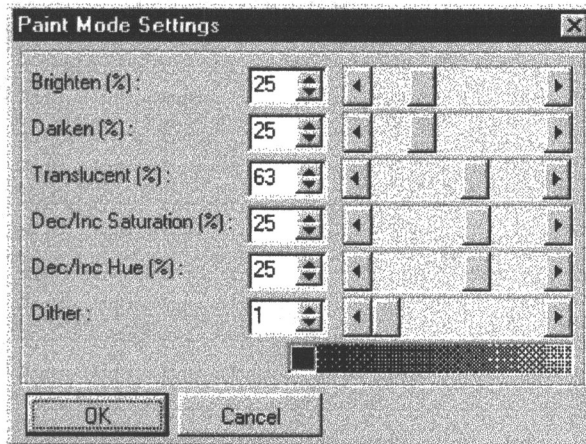### Emboss II
Puts light colored areas into the „background".

Here is a little example of the different filter types:

Different filter paint modes

Settings

Here you can change values for certain paint modes:

Settings for scaleable paint modes

- *Brighten* is the value for the brighten paint mode and defines how much a color is to be brightened up
- *Darken* is the value for the darken paint mode and defines how much a color is to be darkened down
- *Translucent* mixes colors the following way: result color = x% of brush pixel color + (100-xx)% of image pixel color
- *Dec/Inc Saturation*: The value determines if the saturation is to be decreased (value below zero) or increased (value above zero).
- *Dec/Inc Hue*: The value determines if the hue is to be shifted downward (value below zero) or upward (value above zero).
- *Dither* is the dither strength for the corresponding paint mode. The value can be between 0..255 where 0 is no dithering and the larger the value becomes the more foreground color is used for dithering.

This dialog box can stay open while drawing. So you can change certain values quickly without opening and closing it. Below the dither slider you can set up different dither patterns for quick selection.

Menu Frame

This menu contains functions that refer to a single image or an animation frame.

Clear

Clears current image, a range of frames or the whole animation by filling it with the current background color.
To define what is to be erased see the *Clear Tool* in the description of the *Toolbox*.

Next

Switches to the next frame of the animation.

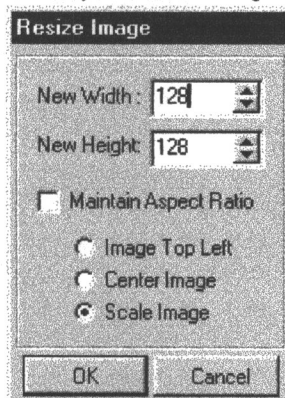### Previous

Switches to the previous image of the animation

First Frame

Jumps to the first image of the animation.

Last Frame

Jumps to the last image of the animation

Resize

Enables you to resize an image:
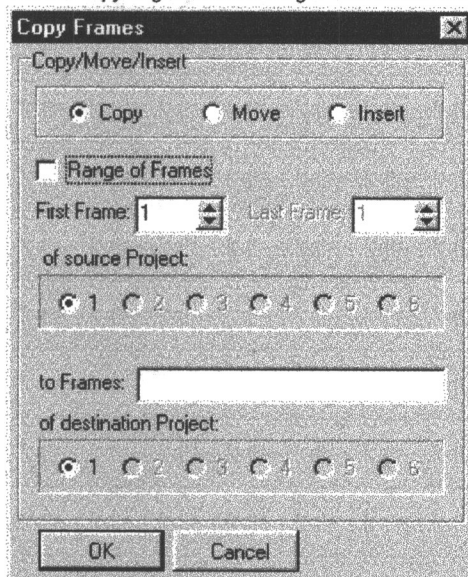
Changing the image size

- New Width and New Height define the dimensions the image is to be scaled to
- Maintain Aspect Ratio keeps the images width-height proportion. So you can then only change either width or height.
- Image Top Left places the old image to the top left corner of the new image.
- Center Image places the old image to the center of the new image.
- Scale Image scales/stretches the old image to fit into the new dimensions.

Resizing is not available for animations!

Copy

You can copy single frames or ranges with this command:

Copy frames requester

You can *Copy*, *Move* or *Insert* a frame or a range of frames to another position within the current project or into another one.

If *Range of Frames* is selected then *First Frame* and *Last Frame* define this range. Otherwise only the *First Frame* is used.

Define a *Source Project* where the frame(s) are to be taken from.

The destination of the frame(s) must be defined in the *To Frames* input field.
Here you can type numbers separated by commas and/or ranges using a "-". Example: 3,5,10-15
When using Move or Insert only one destination is allowed!
Also be careful not to overlap destination regions!

The frame(s) are copied/moved/inserted to *the Destination Project*.

Insert

Inserts an image to the current position. The previous image is automatically copied into the new image.

Delete

Removes the current image from the animation.

Spare Frame (submenu)

The spare frame is a separate image that can be used for different purposes. For example you can do little test drawings, use it as a little container, take it as a background image for your animation together with the light table. It is also used by the paint mode *Rub Through* (see descriptions for menu *Mode*).
Also a mask shape can be defined in this spare frame. See the Painting Tutorial *Masks*.

Frame -> Spare Frame
Copies the current image to the spare frame

Frame <- Spare Frame
Copies spare frame to the current image

Frame <-> Spare Frame
Swaps spare frame with current image

Scroll (submenu)
Here you can scroll the entire image pixelwise to the directions:

Left, Right, Up, Down
Scrolls to the corresponding direction

Scroll all Frames
When selected, all frames of an animation will be scrolled

Background fixed
This function simply takes the current image and uses it as background. If you now draw something on this image with the foreground color it can be removed again by using the background color. Instead of drawing with the background color the image is restored.
This tool can not be used together with the light table.
See also the description of the *Toolbox*

LOAD/SAVE
Loads/Saves an image from/to disk.

Menu Animation
This menu contains functions that refer to a sequence of images. This sequence can be set up in the control panel. For more information please have a look at chapter *Getting started* section *Workspace*.

Play forward
Plays the selected image sequence forward one time.

Play backward
Plays the selected image sequence backward one time.

Ping Pong
Plays the selected image sequence endless forward and backward.

Loop Forward
Plays the chosen image sequence forward as an endless loop.
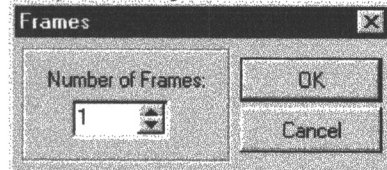
Loop Backward
Plays the chosen image sequence backward as an endless loop.

Stop
Stops playing the animation.

Number of Frames
Here you can change the number of frames the animation contains:

If the new *Number of Frames* is larger than the current then new frames are appended and the last image is copied on them.
If the new *Number of Frames* is smaller than the current then frames are cut off the end of the animation.

Number of animation frames requester

Insert Frames
Lets you insert a number of frames to the current position.

Delete Frames
Lets you delete a range of frames from the animation.

Revert Frames
Select a range of frames which have to be set to reverse order.

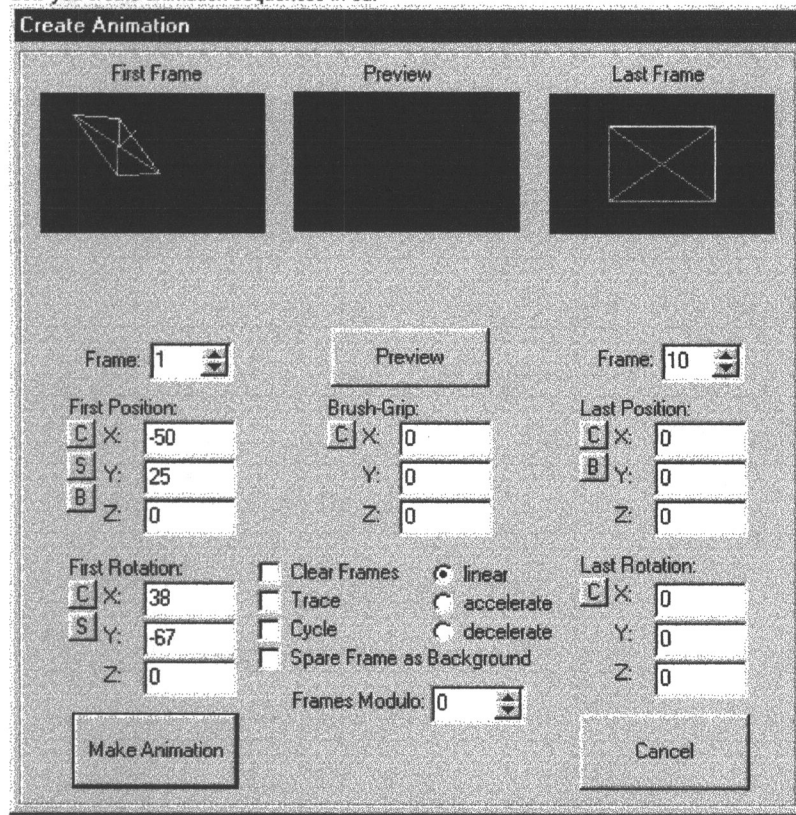## Flip Frames (submenu)
Enables you to flip a range of Frames either

Horizontal
or

Vertical

Create Animation

Lets you create animation sequences in 3d:

3d Keyframer

This dialog box is used to create animations using the current brush image. The brush is a texture and you can give it rotation and position values within the 3d space.

For a tutorial on how to create such animations please refer to the *Painting Tutorial „Animation"*.

Here you will only find a short description of this dialog box to be used as a quick reference.

You can define two keyframes:

- *Frame* is the frame number of the (first/second) keyframe of the animation sequence that is to be created.
- *First Position* and *First Rotation* define the 3d-coordinates and the rotation position of the brush that are to be used for the first keyframe.
- *Last Position* and *Last Rotation* are used for the second keyframe the same way.

The position coordinates are relative to the brush center.

Click on one of the two preview images to jump into interactive brush movement.

The rotation/position values relate to the *Brush Grip* which is the brush center by default (0,0,0).

You can see the look of these keyframes in the corresponding preview images.

The brush is displayed as a bounding rectangle of corresponding size and the brush edges on the right and at the top are white for displaying the brush direction.

The images will be calculated using a perspective view. The positive z-axis is defined into the screen depth.

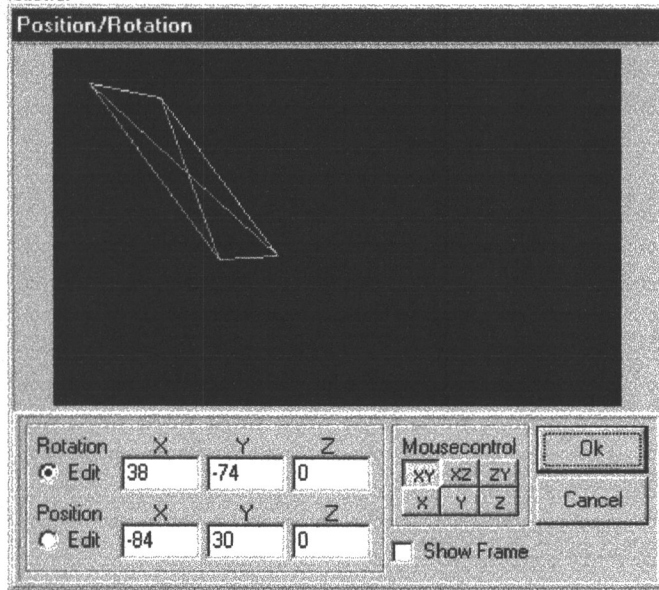So the brush gets smaller with increasing z-position. The center of the coordinate system (0,0,0) is in the middle of the screen.

Preview can be used to see the animation as a wireframe preview.

- *Clear Frames* erases all frames of the animation before calculation.
- *Trace* copies the previous frame to the current frame that is to be calculated to create a trace of the brush movement.
- *Spare Frame as Background* uses the *Spare Frame* (see description for menu *Frame*) as background image for each frame. The animation is drawn on this image.
- *Brush Grip* selects the point within the brush relative to its center, where it should be rotated and moved.
- *Linear, Accelerate* and *Decelerate* define the kind of movement.
- *Cycle* calculates an animation, that can be played as loop. If the first frame and the last frame are identical, an animation jerks a bit, this can be removed with *Cycle*. The last frame will be calculated that it has a smooth passage to the first frame.
- The *C* buttons set the corresponding input fields to "0".

- The *B* buttons can be used to put the last position, where the brush was drawn to, into the corresponding edit fields. So you can stamp a brush down to the canvas (f.e. in the magnify window), go to this animation requester and hit a *B* button where these coordinates have to be used. This gives you the possibility of pixel precise positioning.
- The *S* buttons swap the corresponding values between first and last keyframe
- *Make Animation* calculates the animation finally.
- *Frames Modulo...* calculates an animation that has the given number of frames. That means, that an animation, which is f.e. 40 frames long, will be calculated into 20 frames when using "*...Modulo*: 20". To do this the 21st frame will be calculated into the first frame (the frame number selected as *First Frame*) and so forth.

The interactive brush rotation (activated when clicking on the first frame/last frame image in the keyframer) can be used as follows:

The interactive brush move/rotate requester

Here you can place the brush position/rotation with your mouse. That means you click on the preview area and move your mouse to change the position/rotation.

To chose between editing rotation or position use the corresponding radiobutton. *Mouse control* defines which mouse movement changes which coordinate value:

Mousecontrol	Mouse Movement X	Mouse Movement Y
XY	X	Y
XZ	X	Z
ZY	Z	Y
X	X	none
Y	none	Y
Z	Z	none

Possible mouse movements

You may also enter values into the edit fields directly. Each input must be finished by pressing the ENTER key!
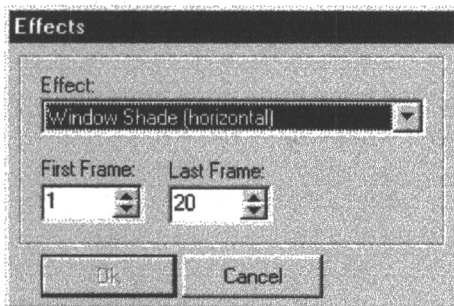
Show Frame allows you to display the corresponding frame image if available behind the wire frame. This can help you to place the brush more exactly.

Create from Undo Buffer
Creates an animation from your drawing steps. A new project will be used to place the animation to.

Effects

shows a dialog box, that lets you apply several transition effects to your animation:

Effects Requester

Effect describes the type of effect that is to be applied to the animation. *First Frame* and *Last Frame* define the frame range the effect will use.

When applying an effect the transition always starts with the first frame and ends with the last one. That means to create and effect in reverse order just swap the values for first and last frame.

So for example to fade out an image over 20 frames (1-20):
- copy it to frame 1
- enter 1 as first frame, 20 as last frame
- use the Fade Out Effect

But if you want to fade in the image you must
- copy it to frame **20**
- enter **20** as first frame, **1** as last frame
- use the Fade Out Effect

Note: Depending on the type of effect chosen, additional checkboxes or edit fields can appear to change certain effect settings. Also it is very important that if you use effects where image parts of the first and last image are visible then both images need to use the same color palette!

The transition effects are quite hard to describe. So here are only brief descriptions of how they work. In the directory *Animations\FX* examples of all effects can be found.

Shifting Bars (horizontal)
The images are divided into horizontal bars. The bar height can be defined with *Bar Height*.
During transition the last frame is shifted over the first frame, where alternately a bar is shifted from the left and from the right side. That means all odd bars (1,3,5...) are shifted from left to right and all even bars are shifted from right to left.
See file *Animations\FX \ShiftBH.flc*

Shifting Bars (vertical)
The images are divided into vertical bars. The bar width can be defined with *Bar Width*.
During transition the last frame is shifted over the first frame, where alternately a bar is shifted from the top and from the bottom border. That means all odd bars (1,3,5...) are shifted from top to bottom and all even bars are shifted from bottom to top.
See file *Animations\FX \ShiftBV.flc*

Stepping Bars (horizontal)
The images are divided into horizontal bars. The bar height can be defined with *Bar Height*.
During transition the last frame is copied on the first frame, where at first all odd bars (1,3,5...) are copied from top to bottom and then all even bars are copied from bottom to top.
See file *Animations\FX \StepBH.flc*

Stepping Bars (vertical)
The images are divided into vertical bars. The bar width can be defined with *Bar Width*.
During transition the last frame is copied on the first frame, where at first all odd bars (1,3,5...) are copied from left to right and then all even bars are copied from right to left.
See file *Animations\FX \StepBV.flc*

Window Shade (horizontal)
The images are divided into horizontal bars. The bar height is automatically defined by the number of frames used for the effect.
During transition the last frame is copied on the first frame, by lifting the bars up. So it looks a bit opening a window shade.
See file *Animations\FX \WShadeBH.flc*

Window Shade (vertical)
The images are divided into vertical bars. The bar width is automatically defined by the number of frames used for the effect.
During transition the last frame is copied on the first frame, by lifting the bars aside.
See file *Animations\FX \WShadeBV.flc*

Growing Window
The last image is copied over the first one using a window that starts from the center and grows to the full size of the image.
See file *Animations\FX \Grow.flc*

Fade Out/In

Fading Out means that the brightness of an image is turned off step by step where the opposite effect is Fading In. You can also fade an animation sequence. To choose between image and animation fading a *Copy* button is displayed. If *Copy* is enabled then a single image is faded out/in. The image entered as first frame will be automatically copied to all other frames and the brightness will be changed.

If *Copy* is disabled then the brightness of each selected frame will be changed without modifying the image data.
Animations\FX \FadeOut.flc

Fade Over

This effect fades over from one image to another. A *24bit with Dithering* option appears. This mode yields better results, but causes the images to be dithered. This can lead to a bad compression ratio when saving this animation.
Animations\FX \FadeOver.flc

Color Cycle

Cycles the colors of the currently selected gradient once over the selected range of Frames. As well as with the FadeOut/In effect you can use this effect on an animation sequence or on a single image.
Animations\FX \Cycle.flc

Mosaic Out/In

Mosaic Out means that an image's resolution is made lower. That means more and more neighbored pixels are combined to a larger pixel. The destination pixel (mosaic) size can be set in the *Size* edit field. As well as with the FadeOut/In effect you can use this effect on an animation sequence or on a single image.
Animations\FX \MosaicOut.flc

Dither

Fades over from the first image to the last one by showing more and more pixels from the last image.
Animations\FX \Dither.flc

Zoom

Lets the last frame zoom from the first frame's center.
Animations\FX \Zoom.flc

Light Table (submenu)

Adjust Light Table

Shows a dialog box, where you can set up adjustments for the light table.
This is described in more detail at the descriptions for the *Tool Box* section *Light table*
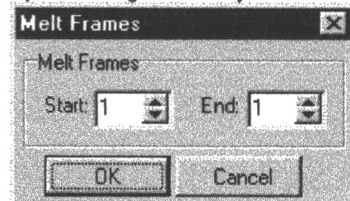
Light Table On

Switches the light table on or off.
For a more detailed description on how to use the light table please have a look at the *Painting Tutorial "Animation"*.

Melt Frames

Opens a dialog box where you create an animation of the images shown by the light table:

With *Start* and *End* you can define a range of frames which are to be melted.

Melting Frames

Melting frames means that the frames that are displayed using the light table are included in the animation. So that the animation looks like if the light table was still on.

So you can add background images to an animation. Or you can make one animation out of different ones. For example you have a general character animation and a separate animation for a backpack in the appropriate position in a second project. You can make a new animation containing backpack **and** character by laying these animations over another with the light table and by melting them using this dialog box.
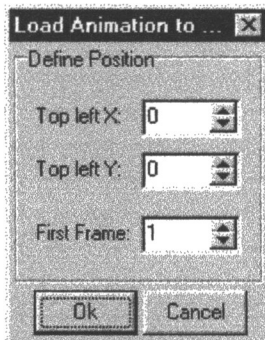
Please keep in mind that the animations should use the same color table. Otherwise the best matching colors of the current animation are used.

Load Animation

Load an animation from disk

Load Animation to Position

Shows a dialog box, which lets you load an animation to a special position (x, y coordinate and frame number) within the current animation:

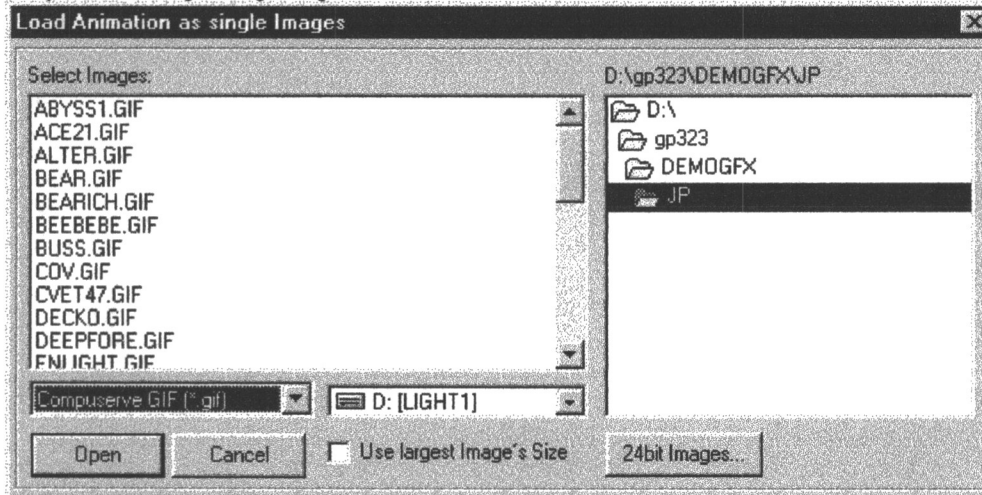**Load an animation to a certain position**

- *Top left X* and *Top left Y* define the coordinates, where the animation has to be loaded to
- *First Frame* is the starting frame to which the animation is loaded

Load as single Images

Lets you define a range of single images to create an animation from:

Make an animation out of single images

With this dialog box you can load an animation consisting of single images with one step.
Hold CTRL-Key and choose images from the list with your left mouse button.
These images will be loaded in alphabetical order.
When "Use largest Image's Size" is checked, the new animation will have the size (width/height) of the largest image selected.
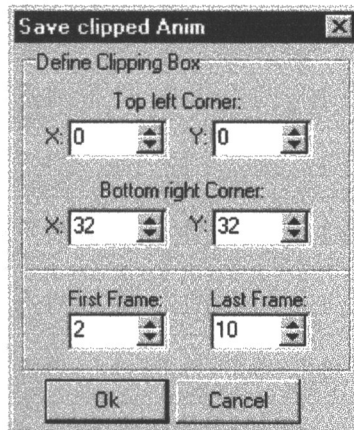Otherwise the current size will be used.
The *24bit Images* button enables you to select the color reduction method for true color images.

Append Animation

loads an animation from disk and appends it to the last image of current animation if the frame size of the new animation is smaller or equal to the current frame size.

Save clipped Animation

Lets you define a rectangular clipping region to save as animation:

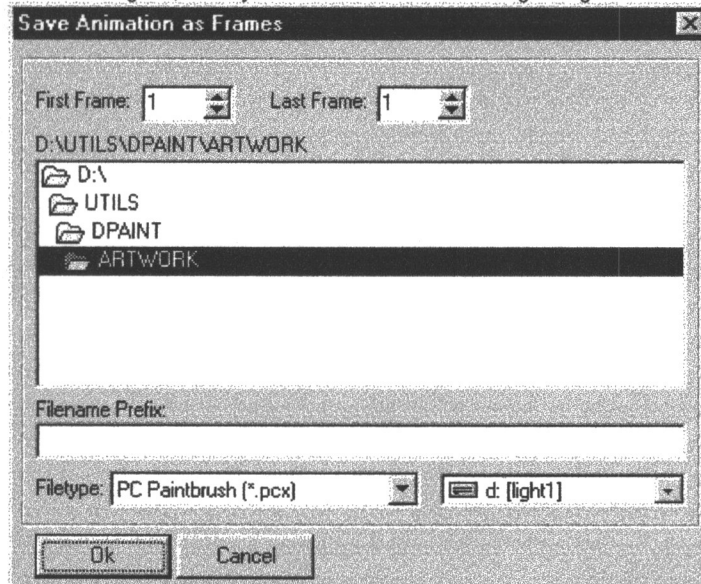**Requester for saving a clipped animation**

- *Top left X, Top left Y, Bottom right X, Bottom right Y* define the region that is to be saved as an animation
- *First Frame* and *Last Frame* is used to save a certain range of frames

Save Animation as single Images

Shows a dialog box, where you can save an animation to single images:

Save Animation as single Images

First Frame and *Last Frame* define the range of frames to be saved.
At *Filename* Prefix you can enter a name for use as a filename prefix. The images will be saved in numbered order (i.e. img001.pcx, img002.pcx ...).

Save Animation

Saves the whole animation to disk.

Menu Colors

This menu contains functions for work with color tables and gradients.

Edit Palette

Opens the palette editor. For a detailed description please see the description for the *Tool Box*.

Edit Gradient
Opens the gradient editor. For a detailed description please see the description for the *Tool Box*.

Reset to Default
Resets the color palette to the selected standard palette. The standard palette can be chosen in the *Preferences* section *Directories*. Please see the description for the menu *File*.

Sort Palette (submenu)

Color
Sorts the colors in the palette starting with white.

Hue
Sorts the colors in the palette according to their *Hue* in the HSV color space.

Saturation
Sorts the colors in the palette according to their *Saturation* in the HSV color space.

Brightness
Sorts the colors in the palette according to their *Brightness* in the HSV color space.
After using one of these functions you should use the "Remap" function from the *Color* menu to fit the image or animation to the new color table.

Count Colors used
Gives you the number of palette entries that are actually used by the image.

Get Palette from Brush
Copies the brush color table to the current frame palette.
Use the *Remap* function from the *Color* menu to fit the image to the new color table.

Import Colors from Brush
Copies as much as possible colors from the current brush to the current image's color table. If not all brush colors can be imported the most important brush colors are used.

Remap Colors (submenu)
If you change the color table but you don't want these changes to take affect to the image. This function adapts all colors of an image to their current color table according to the colors the image had before the change.
You can remap the colors of

Frame

Animation

Brush

Resample Colors (submenu)
This function does the same as *Remap Colors* but the image will be dithered to increase quality.
You can resample the colors of

Frame

Animation

Swap FG<>BG Color (submenu)
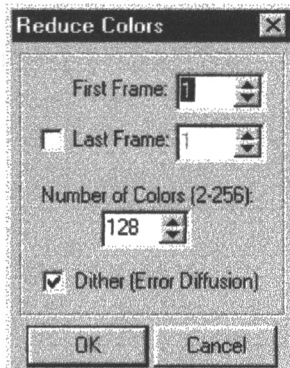Swaps the current selected foreground color index with the background color index in either

Picture/Animation
or

Brush

Reduce Colors

Opens a dialog box that allows you to reduce the number of colors used by an image or a range of frames:

Reduce Colors

First Frame: 1

☐ Last Frame: 1

Number of Colors (2-256):
128

☑ Dither (Error Diffusion)
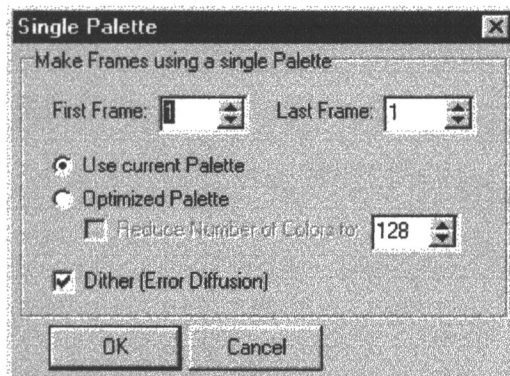
OK   Cancel

Color reduction

- If *Last Frame* is enabled the *First Frame* defines the start of the frames which colors have to be reduced. Otherwise only this single frame will be reduced.
- Use *Last Frame* to select a range of frames for color reduction.
- The images colors will be reduced to *Number of Colors*.
- *Dither* applies dithering to the color reduced image

Single Palette

Opens a dialog box that allows you to make a range of images using the same color table:

Single Palette

Make Frames using a single Palette

First Frame: 1   Last Frame: 1

◉ Use current Palette
◯ Optimized Palette
☐ Reduce Number of Colors to: 128

☑ Dither (Error Diffusion)

OK   Cancel

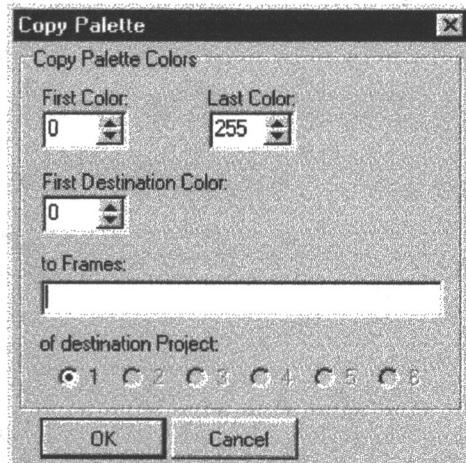**Make a range of frames using the same color table**

- Use *First Frame* and *Last Frame* to define the range of frames that will have to use the same color palette.
- *Use current palette* applies the current frame's palette to all other frames.
- *Create new Palette* builds a new palette from all different color tables.
- You can also reduce the number of colors that should only be used by checking the *Reduce Number of Colors*
- *Dither* applies dithering to the color reduced image

Copy Palette

Shows a dialog box, where you can copy a range of the current palette colors to other frame's color tables:

Copy Palette

Copy Palette Colors

First Color: 0   Last Color: 255

First Destination Color: 0

to Frames:

of destination Project:
◉ 1 ◯ 2 ◯ 3 ◯ 4 ◯ 5 ◯ 6

OK   Cancel

Copy colors requester

- *First Color* and *Last Color* define the first and the last color index of the range to be copied.
- *First Destination Color* is the color index the range will be copied to.
- The *to Frames* input field contains the destination palettes. You can enter single frame numbers or ranges separated by commas.
- You may also select a different *destination Project*.

Example:
You want to copy colors 16-31 of the current color palette to colors 64-79 of the palettes 1,3 and 5-10.
„First Color": 16   "Last Color": 31
„First Destination Color": 64
„to frames": 1,3,5-10

Remove Colors (submenu)

You can remove certain colors from the current frame:

Remove unused Colors
Removes all colors from the color table which don't appear in the image. This is done by setting these colors to black.

Remove duplicate Colors
Removes all colors from the color table which are duplicated.

Load Palette
Loads a color palette from either a palette file or from an image file.

Save Palette
Saves a color palette file.

Menu Stencil

This menu contains functions for painting with a stencil (color mask).

Stencil On
Switches the stencil on/off

Make Stencil
Shows a dialog box, where you can specify the stencil.
For a detailed description please have a look at the description for the *Tool Box*.

Load Stencil
Loads a stencil file from disk.

Save Stencil
Saves a stencil file to disk.

Menu Clipboard

With these functions you can transfer single images from and to other applications using the Windows Clipboard.

Copy Frame to Clipboard
Copies current image to the Windows Clipboard.

Cut Frame to Clipboard
Copies current image to the Windows Clipboard and removes it from the animation.

Copy Frame from Clipboard
Reads an image from the Windows Clipboard.

Paste Frame from Clipboard
Reads an image from the Windows Clipboard and inserts it into the animation.

Put Brush to Clipboard
Copies current brush to Windows Clipboard.

Get Brush from Clipboard
Reads an image from the Windows Clipboard and uses this as brush.
(this function is only available if the clipboard contains a 256 color image!) Use *Remap Colors* or *Get Palette from Brush* from the *Colors* menu if the color tables of brush and current image are different.
Color "0" is assumed as transparent.

Menu Plugins

This menu shows installed plugins. You can start them by clicking on the plugin menu entry.

Import
contains plugins that import graphics of other file formats than supported directly by Pro Motion.

Export
Contains plugins, that can save graphics to other file formats than supported directly by Pro Motion.

Manipulation
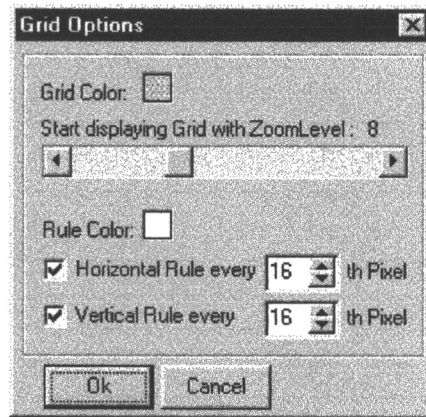Contains plugins that can modify animations or images.

Menu Options

With this menu you can select different options like visible windows...

Zoom Grid

Adjust Zoom Grid

Shows a dialog box , where you can change visibility, color and of the zoom grid:

* *Grid Color* defines the color of the normal grid
* The slider defines the minimum zoom level where the grid will be drawn
* *Rule Color* defines the color for additional rules
* Additional *horizontal* and *vertical rules* can be added with different pixel spaces defined by the corresponding input fields

Settings for the drawing grid

Show Zoom Grid

Switches zoom grid on/off

Windows

Arrange Windows

Fits all visible but requester windows into the workspace.

There are two different methods of arranging window depending on where the toolbox is placed. If it's on the right halve of the main window it will be placed at the right border and the magnify window to its left side...

If it's on the left halve of the main window it will be placed at the left border and the magnify window to its right side...

Save Positions/Size

Saves current window positions and sizes of the workspace.

This can be used to make the current window arrangement to the default arrangement after startup. See also function Restore Positions/Sizes.

Save Positions/Sizes (Zoom)

Saves current window positions and sizes of the workspace. This window arrangement is restored if you use the zoom tool (magnify glass on the toolbar). This allows you to have different window positions when working in zoom or normal mode. This function must be activated in the preferences.

Restore Positions and Sizes

Restores the window positions saved with "Save Position Sizes"

Restore Positions and Sizes (Zoom)

Restores the window positions saved with "Save Position Sizes"

Show Toolbox

Switches the tool panel on/off

Show Animation Window

Switches window on/off where the animation is replayed.

Show Info Panel

Switches information panel (colors/sizes/positions) on/off

Show Control Panel

Switches the animation control panel on/off

Show Palette

Switches the resizeable palette window on/off.

Show Brush Container

Switches the brush container on/off

Screen Synchronization

If this option is activated each animation frame is synchronized to the display.
This is important is program is run under a desktop color depth of 8bits and frames have different palettes to prevent color flickering. Does not work under Windows NT.

Animate Magnify Window

If this option is activated, the animation will be played only in the Magnify Window (with current zoom mode).

Equal Palettes

If the palette of the current frame is changed manually (gradient calculation or changing the color value of an palette index), the changes will be set to all frames within the selected range.

Use Spare Frame as Mask

If this option is activated, the image in the "Spare Frame" (see Menu "Frame") is used as drawing mask.

Anti Alias

If this option is activated, an Anti Alias Filter is calculated over a drawn object. This function reduces aliasing effects like „stairs" caused by pixel lines.
It can also be used when calculating an animation with the 3d-keyframer.

Menu Help

This menu contains the usual "Help"-functions for the Online-Help.

Contents

Shows the contents of the help file

Search

Jumps to the help-search engine

About

Shows informations concerning the application

Keyboard Shortcuts

Brush commands
Shift+Y	double brush height
Shift+X	double brush width
H	halve brush size
Shift+H	double brush size
X	mirror brush horizontally
Y	mirror brush vertically
Z	rotate brush 90° counter clockwise
Ctrl+Z	rotate brush 90° clockwise
O	outline brush with foreground color
Ctrl+O	cut off outer pixel row
Alt+O	outline brush with foreground color and erase the inner area
Alt+C	brush grip center
Alt+X	brush grip top left
Alt+Y	brush grip lower right
Alt+H	set custom brush grip
Shift+B	restore last brush
Shift+Z	resize brush interactively
A	settings for animated brush
Shift+D	make brush to be single colored

Paint Modes
F2	normal brush paint
F3	brighten
F4	darken
F5	tint
F6	shift hue
F7	shift saturation
F8	invert
F9	draw with difference colors
Shift+F1	translucent
Shift+F2	dither
Shift+F3	gray
Shift+F4	high pass filter
Shift+F5	soften
Shift+F6	soften more
Shift+F7	light edges I
Shift+F8	light edges II
Shift+F9	emboss I
Ctrl+F3	emboss II
Ctrl+F5	shade
Ctrl+F6	draw with foreground color
Ctrl+F7	replace
Ctrl+F8	smear
Ctrl+F9	blend
Alt+F1	rub trough to spare frame
Ctrl+T	paint mode settings
Tab	color cycling
Ctrl+R	remap brush colors

Toolbox Commands
Alt+A	anti-alias on/off
B	grab brush as box-selection
Alt+B	grab brush freehand
C	circle
Shift+C	filled circle
D	draw continuous
F	fill
Shift+F	fill settings
G	lock rid on/off
I	redo (also Shift+middle mouse button)
Ctrl+I	executes all redo steps
K	clear frame
Shift+K	clear settings
L	light table on/off
Ctrl+Alt+L	light table settings
M	magnify tool on/off
R	rectangle
Shift+R	filled rectangle
S	draw dotted
Shift+S	stencil on/off
T	create text brush
Shift+T	define stencil

U	undo (also middle mouse button)
Ctrl+U	execute all undo-steps
V	current line tool
,	pipette
.	single pixel brush

Animation Control

1	previous frame
Shift+1	first frame
2	next frame
Shift+2	last frame
4	loop forward
Shift+4	loop backward
5	play forward
Shift+5	play backward
6	play pingpong
7	previous animbrush frame
Shift+7	first animbrush frame
8	next animbrush frame
Shift+8	last animbrush frame
Ctrl+Ins	insert frame
Ctrl+Del	delete frame

Navigation

Cursor keys	scroll image
Shift+Cursor keys	scroll through image pagewise
Pos1	left border
Shift+Pos1	upper border
End	right border
Shift+End	lower border
N	center area under mouse cursor

Colors

P	edit color table
Q	edit gradient
Shift+Q	flip gradient direction
[,]	previous, next color (these keys can be changed under preferences)

Special Keys

F10	toolbox on/off
Shift+F10	info panel on/off
F11	animation window on/off
Shift+F11	animation controls on/off
F12	onscreen palette on/off
Shift+F12	brush container on/off
Ctrl+Alt+1	shift image one pixel to the left
Ctrl+Alt+2	shift image one pixel to the right
Ctrl+Alt+3	shift image one pixel upwards
Ctrl+Alt+4	shift image one pixel downwards
Shift+A	spare frame as mask on/off
Ctrl+B	take whole image as brush
Ctrl+C	copy frame(s)
E	restore window-positions
Shift+E	save window-positions
Alt+F	fix image as background
Alt+G	zoom grid on/off
J	swap image with spare frame
Alt+J	copy image to spare frame
Ctrl+J	copy spare frame to image
Shift+M	keyframer
Ctrl+R	load image
Alt+R	load animation
Ctrl+S	save image
Alt+S	save animation
Alt+T	flip toolbox orientation
Alt+V	center animation window
W	change between two zoom levels
Alt+W	zoom level 1:1
Ctrl+X	single pixel cursor on/off
+,-	increase/decrease brush size
<, >	increase/decrease zoom level
Multiply key on NumPad	switch gradient cycling on/off
(NumPad must possibly be switched on)	
Ctrl+1..9	zoom levels 1..9
Alt+L	load animation

Alt+S	save animation
Ctrl+L	load image
Ctrl+S	save image

Control Keys for Drawing

Ctrl	temporary pipette
Shift	lock movement (hold shift and move the mouse to the direction that is not to be locked)
Ctrl+Alt	an animated brush it will be stamped into the animation frame by frame

The Alt-key has certain meanings for different tools:

Pipette
- by leftclicking on a pixel all pixels of this color will be replaced by the current foreground color
- when clicking with the right mouse button, the background color is used instead

Dotted/Continuous Painting/Line Tool
- starts AnimPainting where you advance through the frames while drawing

Circle/Rectangle
- switches between circle<>ellipse or square<>rectangle

Brush Resizing
- switches between proportional (keeping aspect ratio) and free stretching

Fill Tool
- all following animation frames are filled too

Appendix

Technical Informations

Here you will find some important notes which will improve the performance of Pro Motion

Color Depth

Although Pro Motion is made to create 256 color based images and animations it is recommended that you do not run it under a 256 color Windows Desktop.

If you do so you won't be able to use all colors. This is because Windows reserves 20 colors for its own use, colors 0 to 9 and 246 to 255. They can not be changed! That means if you load an image or animation that uses these colors they will be displayed wrong. There are ways to fix this (see function *Remap Colors* of the menu *Colors*), but the results can be very poor.

So please make your Windows Desktop to run with a color depth of at least 16bit (high color) or 24bit (true color).

Memory Management

Pro Motion keeps image and animation data plain in your computer memory (RAM). Disk streaming or online compression is not supported. So if you create an animation always be sure that you have enough free memory.

Requester to create a new image/animation

The requester for creating a new image/animation shows how much memory you have available (*Memory available*) and how much is needed (*Memory Usage*).

As a thumb rule you should only use three quarters of your **physical** memory. If you use more than three quarters, Windows always swaps the memory to your harddisk. This will slow down the animation playback speed dramatically.

Windows sometimes swaps memory to disk even if you have enough physical memory installed and the animation plays jerky. But after the animation cycled two or three times it should be completely loaded into the physical memory.

Here are some hints helping you to improve the performance of Windows:

Windows has a file cache system that automatically increases its cache size and the larger the file cache the less memory you have available. So you should limit the file cache.

- Make a backup copy of the file „System.ini" which can be found in the „\Windows" directory
- Open the file „System.ini" with your favorite text editor
- Go to the end of the file and insert the following text:

      [VCACHE]
      MinFileCache=1024
      MaxFileCache=2048

These lines limit your file cache to a minimum of 1024Kbyte and to a maximum of 2048Kbyte. These values are only examples! The sizes depend on the amount of physical memory you have installed.

Assume „M" is the amount of physical memory you have installed, then:

MinFileCache= (M-16) / 16 * 1024
MaxFileCache=(M-16) / 8 * 1024

Example:
If you have 32MB installed the values should be

MinFileCache=	(M-16) / 16 * 1024	=(32-16) / 16 * 1024	=1 * 1024	=1024
MaxFileCache=	(M-16) / 8 * 1024	=(32-16) / 8 * 1024	=2 * 1024	=2048

These values should also be used if you have only 16MB installed.

- Save the file „System.ini". The changes will take effect after your next reboot.

Do not change any other values in the „System.ini" file!!!! This can make your operating system unstable or not to boot!

Another topic when talking about memory and performance is the pagefile (swapfile). This pagefile should be set to a fixed size! A thumb rule says that it should have the doubled size of your physical memory!

Supported File Formats
Pro Motion supports different file formats for loading and saving images and animations:

Description	Type	Suffix	Load	Save	Color Depths for loading
Amiga animated IFF	Animation	.iff	y	n	all up to 256 colors
Amiga IFF	Image	.iff	y	y	all up to 256 colors
Autodesk FLIC	Animation	.flc	y	y	256 colors
Autodesk FLIC	Animation	.fli	y	n	256 colors
Compuserve GIF87a	Image	.gif	y	y	all up to 256 colors
Compuserve GIF89a	Image / Animation	.gif	y	y*	all up to 256 colors
Deluxe Paint Image	Image	.lbm	y	y	all up to 256 colors
JPEG Image	Image	.jpg	y	y	16.8 million colors
Paintbrush Image	Image	.pcx	y	y	256 colors
Pro Motion Sprite	Animation	.spr	y	y	256 colors
Windows animated Cursor	Animation	.ani	y	y	all up to 256 colors
Windows AVI	Animation	.avi	y	y	
Windows Bitmap	Image	.bmp	y	y	all up to 16.8 million colors
Windows Icon	Image	.ico	y	y	all up to 256 colors

* The GIF89a file format can only be saved using the plugin which can be found in the menu *Plugins->Export*.

Pro Motion always saves images and animations with 256 colors only, except Windows Bitmaps (.bmp).
In the *Preferences* (menu *File*) section *Miscellaneous* you will find an option called „Save BMP Files with least possible Color Depth...".
If this option is enabled BMP files are saved with only the colors necessary. That means if you use only the first 16 palette entries for your image then the image is saved as a 16 color image instead of a 256 color image.
When loading an image or animation that contains more that 256 colors (i.e. 24bit-BMP, JPG or AVI files) a requester appears to set the color reduction mode. This requester is described in the *References* (descriptions for the menu *File*).

Pro Motion supports different file formats for loading and saving non-graphical data such as palettes or stencils:

Description	Type	Suffix	Load	Save
Microsoft Palette	Color Palette	.pal	y	y
Pro Motion Palette	Color Palette	.pal	y	y
Pro Motion Stencil	Stencil	.stn	y	y

File Format Descriptions
Pro Motion has an own file format for saving animations, the Sprite format.
This file type saves an animation by writing the image data plain uncompressed into a file. So these files can be easily read and converted to other formats.

The Sprite file structure:
The Header defines the dimensions of the animation.

Position (bytes)	Type	Description
$00	3 ASCII-chars	"SPR" as sign for this format
$03	Word	Number of frames
$05	Word	WIDTH in pixels
$07	Word	HEIGHT in pixels

The Header is followed by the color and animation data at position $09+.

For each frame repeating:

Position (bytes)	Type	Description
$00	Word	delay value for this frame in ms
$02	256*3 Bytes	describes the 256 color table with the values Red, Green, Blue
$302	WIDTH*HEIGHT Bytes	image data of this frame

Values are stored in the WORD format using the low byte order (little endian). That means that the least significant byte is saved first followed by the most significant byte.

Color palettes (*.pal)
These color tables are exactly 768 Bytes large and contain for each of the 256 colors 3 byte values for Red, Green and Blue.

Expansion of the Autodesk FLC-Format

So far you can save only animations using Autodesk FLC-format that only have one delay value for all frames. I expanded the format a bit so that each single frame can have its own delay value.

The following change has been made (a complete description of the FLC-format is available under FTP://x2ftp.oulu.fi/pub/msdos/programming/formats/):

Now the bytes 8 and 9 of each FRAMEHEADER (yet unused and 0) are a 16-Bit delay value for this specific frame.

Player Software

Pro Motion includes a freeware animation player (PMPlayer.exe) that can be used to show Autodesk FLC animation files. This player may be distributed freely as long as no money is charged and no changes are made.

The Plugins

A "plugin" is a single program that is executed by "Pro Motion" and that has certain functions. So plugins are extensions for the application. Hobby programmers can extend this program by themselves. "Pro Motion" offers a simple plugin-interface and can differ between three kinds of plugins:

1. IMPORT-Plugins

are programs that can read images or animations that use a file format that is not supported by the application.

2. EXPORT-Plugins

are the opposite type of plugins than the IMPORT-Plugins and can write out image or animation data to other file formats than supported by the application.

1. MANIPULATION-Plugins

are programs that modify a single image or an animation and can be used to create special effects.

You can execute a plugin by selecting it from the menu Plugins and the corresponding submenus.
The full version of Pro Motion contains a free „animated GIF89a"-Export-Plugin.
Technical informations about the plugin interface can be found at our home page at http://www.cosmigo.com/promotion

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Zoom Level 51